The Asian, Australasian and Pacific Paraboloponinae (Homoptera: Cicadellidae)

A taxonomic revision with a key to all the known genera of the subfamily

M. D. Webb

Department of Entomology, British Museum (Natural History), Cromwell Road, London SW7 5BD

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Synopsis

The subfamily Paraboloponinae is redefined and a key is provided to the nine genera recognized, of which four are new. The Asian, Australasian and Pacific genera are fully revised for these regions, with keys to the 25 species (18 new) recognized. Four new generic synonymies, ten new specific synonymies and six new combinations are established. Seven lectotypes and one neotype are newly designated.

Introduction and historical review

The family Paraboloponidae was erected by Ishihara in 1953 as a subdivision of the Cicadelloidea (now Paraboloponinae and Cicadellidae respectively) for the Japanese genus *Parabolopona* Matsumura, containing two species, *P. guttata* (Uhler) and *P. camphorae* Matsumura. In Ishihara's description of the subfamily he distinguished it from others in Japan by the cylindrical form, conically produced vertex and long antennae. In 1960 Linnavuori listed the group as a tribe of the Deltocephalinae and described a new genus and species, *Oceanopona croceipennis*, from the Caroline Is., and in 1974 Eyles & Linnavuori raised the group to subfamily level and included *Calotettix* Osborn, containing *metrosideri* Osborn and *metrosideri* var. *tincta* Osborn, from the Marquesas Is., and a new species, *lais*, from the Cook Is. In 1975 Hamilton added the Holarctic genera *Stymphylus* Stål, containing *rubrolineata* Stål and *modestus* Linnavuori (transferred to the

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Deltocephalinae by Linnavuori in 1978), *Yakunopona* Ishihara, with one species, *yakushimensis* Ishihara, from Japan, and *Zizyphoides* Distant, containing *indicus* Distant, *fraternus* Distant and *punctatus* Rao from India and *quadricornis* Linnavuori from Africa. In addition Hamilton drew further attention to the long, dorsally situated antennae as a means of identifying the subfamily. In 1978 Linnavuori revised the Paraboloponinae from the Ethiopian region and redefined the group as having falcate anterior tentorial branches, dorsally situated antennae, deep antennal pits delimited by a relatively distinct dorsal ledge and the ocelli not visible from above. He added *Dryadomorpha* Kirkaldy, containing *pallida* Kirkaldy, *lotophagorum* Kirkaldy and *viridia* Osborn from Australia, Fiji and the Marquesas Is. respectively, and *Stenomiella* Evans, containing one species, *viridis* Evans, from Africa; he also described a new genus *Odmiella* for *Stenomiella falcata* Linnavuori, from Africa. In addition, the genus *Paganalia* Distant with one species, *virescens* Distant, from the Seychelles, was transferred to the subfamily as a senior synonym of *Zizyphoides* and *Rhombopsana* Metcalf, the latter a replacement name for *Rhombopsis* Haupt and containing *virens* (Haupt) from Palestine and *chatterjeei* (Singh-Pruthi) and *viridis* (Singh-Pruthi) from India. The species *Z. fraternus* was transferred to *Stirellus* Osborn & Ball (Deltocephalinae), a new species of *Paganalia* from Africa (*anacryon*) was described and *Platymetopius antennalis* Lindberg, from the Canary Is., was synonymized with *Paganalia virens*. The latter species was synonymized with *Paganalia virescens* by Webb (1980).

Whilst identifying Paraboloponinae from material in the British Museum (Natural History) and elsewhere I discovered four new genera and 18 new species from Asia, Australasia and the Pacific and found that many previous descriptions were inadequate. In addition, the species *Parabolopona camphorae*, *Dryadomorpha lotophagorum* and *Muirella longiseta* Melichar, the latter previously included in the Coelidiinae, were found to belong to other genera. A number of generic and specific synonymies were also discovered.

The subfamily characters given by previous workers are for the most part confirmed by the present study, although of those listed by Linnavuori in 1978 (see above) the antennal ledge is sometimes absent and the ocelli are often visible from above. The male genitalia of the group are similar to those of the Deltocephalinae with Y-shaped connective, but those of *Parabolopona* are somewhat distinct from the remaining genera in having a long membranous connection between the connective and the aedeagus, the apex of the connective extended posteriorly and the basal apodeme of the aedeagus, in some species, horizontal and compressed dorsoventrally. The genus *Favintiga* is unusual within the Cicadellids in having a ventroapical process on the connective.

The aim of the present paper is to revise the known genera of Paraboloponinae, other than *Odmiella* and *Stenomiella* from Africa (revised by Linnavuori in 1978), to describe new genera and species from the Asian, Australasian and Pacific regions, to redescribe the subfamily and to provide a key to the known genera.

Acknowledgements

For the loan of material in their care I would like to thank the following: Dr P. H. Arnaud, CAS, San Francisco; Dr M. Boulard, MNHN, Paris; Dr O. B. Chhotoni, ZSI, Calcutta; Dr J. Dlabola, NM, Prague; Dr P. H. van Doesburg, RNH, Leiden; Dr K. G. A. Hamilton, CNC, Ontario; Dr Y. Hirashima, ELKU, Fukuoka; Dr J. P. Kramer, USNM, Washington; Dr M. Meinander, ZMU, Helsinki; Dr G. M. Nishida, BPBM, Honolulu; Dr P. K. Sen-Sarma, FRI, Dehra Dun; Dr S. Takagi, EIHU, Sapporo; Dr T. Weir, ANIC, Canberra; Dr K. A. J. Wise, IM, Auckland. I would also like to thank Dr J. Evans for the loan of material in his private collection, Mrs G. Nakahashi and Professor J. Medler for sorting material from the Bishop Museum collection, Dr T. Ishihara and Dr C. A. Viraktamath for their helpful communications and Dr W. J. Knight for the information contained in his unpublished check list on the Pacific Cicadellidae.

Abbreviations of depositories

The specimens studied in the course of this work are deposited in the various institutions and private collections whose names are abbreviated in the text as follows: The South Australian Museum, Adelaide, South Australia (SAM, Adelaide); Auckland Institute and Museum, Auck-

land, New Zealand (IM, Auckland); Department of Scientific and Industrial Research, Auckland, New Zealand (DSIR, Auckland); Zoological Survey of India, Calcutta, India (ZSI, Calcutta); [Australian National Insect Collection,] C.S.I.R.O., Canberra, Australia (ANIC, Canberra); The Ohio State University, Columbus, Ohio, U.S.A. (OSU, Columbus); Zoologisk Museum, Copenhagen, Denmark (ZM, Copenhagen); Forest Research Institute, Dehra Dun (U.P.), India (FRI, Dehra Dun); Entomological Laboratory, Kyushu University, Fukuoka, Japan (ELKU, Fukuoka); Zoological Museum of the University, Helsinki, Finland (ZMU, Helsinki); Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A. (BPBM, Honolulu); private collection of Professor Dr H. J. Muller, Jena, D.D.R. (HJM, Jena); Rijkusmuseum van Natuurlijke Historie, Leiden, Netherlands (RNH, Leiden); British Museum (Natural History), London, United Kingdom (BMNH, London); [Canadian National Collection,] Ottawa, Ontario, Canada (CNC, Ontario); Muséum National d'Historie Naturelle, Paris, France (MNHN, Paris); Národní Muzeum, Prague, Czechoslovakia (NM, Prague); California Academy of Sciences, San Francisco, California, U.S.A. (CAS, San Francisco); Entomological Institute, Hokkaido University, Sapporo, Japan (EIHU, Sapporo); private collection of Dr J. W. Evans, Sydney, Australia (JWE, Sydney); [U.S. National Museum,] National Museum of Natural History, Washington, U.S.A. (USNM, Washington).

PARABOLOPONINAE Ishihara

Paraboloponidae Ishihara, 1953: 20. Type-genus: *Parabolopona* Matsumura.
Paraboloponini; Linnavuori, 1960: 299.
Paraboloponinae; Eyles & Linnavuori, 1974: 39.

Yellow, greenish yellow or brownish yellow, often apex of clavus and claval veins with a small brown spot.

Head as wide or wider than pronotum; anterior margin rounded or rim-like, transversely striate, ocelli on margin distant from eyes, anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced with fine longitudinal striations. Face as wide or wider than long, shagreen; antennae very long, arising near dorsal corners of eyes; antennal pits deep; antennal ledges slight or absent; clypeus with lateral margins constricted near antennae; clypellus elongate, usually with sides concave, rarely with sides parallel; lora large. Pronotum with sides very short to moderately long, with or without a carina; transversely striate, with anterior region rugose or shagreen. Scutellum shagreen or shagreen and obscurely rugose posteriorly. Forewing with three subapical cells, the first subapical cell open and the second and third closed; subcostal region usually with a few veinlets near to fifth apical cell. Fore tibia with setal arrangement 1: 4.

Male genitalia with pygophore lobes long with several long spine-like setae. Xth segment short to long, without processes. Valve triangulate. Subgenital plate elongate, triangulate with short to long fine marginal setae dorsally. Connective Y-shaped with stem short to long, arms short. Style with lateral lobe and apical process short to moderately long, with a few sensory papilla and sometimes setae adjacent preapical lobe; basal apophyses weak to strongly developed. Aedeagus usually closely attached to connective; shaft cylindrical, narrow, tapered to apex, usually symmetrical, processes usually at or near apex sometimes basal; basal apodeme usually vertical, rarely horizontal.

Female genitalia with second valvulae elongate, usually slightly expanded distally with a short to long dorsal sclerotized region, with or without a dorsal prominence.

BIOLOGY. The few recorded host plants of Paraboloponinae are shrubs and small trees. *Favintiga camphorae* is found on *Cinnamomum camphora* Nees & Ebermaier, *Dryadomorpha pallida* on *Zizyphus jujuba* Miller and *Dryadomorpha metrosideri* on *Glochidion ramiflorum* J. R. & G. Forster, *Rapanea* sp., *Reynoldsia* sp. and *Weinmannia parviflora* G. Forster.

DISTRIBUTION. The subfamily is confined to the Old World where it is found mainly in Asia and Australasia but also extends into the Pacific and the Ethiopian region.

Key to the genera of Paraboloponinae

1 Side margins of pronotum carinate, moderately long (Fig. 1). Setal arrangement at apex of hind femur 2 + 2 + 1 or 2 + 2 + 0 2
– Side margins of pronotum not carinate, short (Fig. 41). Setal arrangement at apex of hind femur 2 + 1 + 1 or 2 + 1 + 0 4

2 Vertex with medial length approximately twice length next to eye. 12–15 setae in fore femur series (Fig. 3). Setal arrangement at apex of hind femur 2 + 2 + 1. (Asia as far south as Nepal to the Philippines: Luzon) 3
– Vertex with medial length approximately four times length next to eyes. 3–4 setae in fore femur series. Setal arrangement at apex of hind femur 2 + 2 + 0. (Africa) . . ***ODMIELLA*** Linnavuori
3 Dorsum yellow or yellow tinged with green. Fore margin of head rim-like (Fig. 5). Vertex shagreen . . . . . ***PARABOLOPONA*** Matsumura (p. 42)
– Dorsum brownish yellow. Fore margin of head rounded (Fig. 33). Vertex finely longitudinally striate . . . . . ***FAVINTIGA*** gen. n. (p. 47)
4 Vertex shagreen and obscurely rugose. Setal arrangement at apex of hind femur 2 + 1 + 0 ***OCEANOPONA*** Linnavuori (p. 73)
– Vertex longitudinally striate or rugose. Setal arrangement at apex of hind femur 2 + 1 + 1 . 5
5 Length approximately 10·0 mm. Male pygophore lobes with a long process; subgenital plates shorter than pygophore. (Africa) . . . . . ***STENOMIELLA*** Evans
– Length not exceeding 8·7 mm. Male pygophore lobes without a process; subgenital plates longer than pygophore (Fig. 53). (Africa and Oriental region) 6
6 Clypellus with sides parallel (Fig. 151). 10 setae in fore femur series . ***KAROSEEFA*** gen. n. (p. 70)
– Clypellus with sides concave (Fig. 42). 3–7 setae in fore femur series 7
7 Vertex and pronotum rugose. Lateral margins of face adjacent to eyes visible dorsally (Fig. 68) ***RHUTELORBUS*** gen. n. (p. 56)
– Vertex and pronotum longitudinally striate. Lateral margins of face not visible dorsally (Fig. 41) 8
8 Vertex without pale patches. Female genitalia with posterior margin of pregenital sternite with a small protuberance each side of midline (Fig. 51); dorsal margin of second valvulae with an anterior prominence (Fig. 56). Male genitalia with aedeagus symmetrical ***DRYADOMORPHA*** Kirkaldy (p. 49)
– Vertex with or without pale patches. Female genitalia with posterior margin of pregenital sternite without a protuberance each side of midline; dorsal margin of second valvulae without an anterior prominence (Fig. 133). Male genitalia with aedeagus asymmetrical ***PAROHINKA*** gen. n. (p. 51)

PARABOLOPONA Matsumura

Parabolopona Matsumura 1912: 288. Type-species: *Parabolocratus guttatus* Uhler, by original designation.

Yellow to greenish yellow; forewings with a small brown spot on apex of clavus, on apex of veins of clavus and apical cells and a variable brown spot on first *m-cu* cross vein and base of inner vein of second subapical cell.

Head as wide as pronotum; anterior margin rim-like, carinate; ocelli on margin, distant from eyes, visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length approximately twice length next to eyes; sides slightly convex or slightly angularly rounded; apex narrowly angularly rounded; shagreen, transversely striate anteriorly. Face slightly wider than long, shagreen; upper margin depressed medially with a few transverse striations; face in profile more or less straight; clypeus moderately long and narrow, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture visible; lora large; antennal pit deep with inner margin more or less angularly rounded to clypeus; antennal ledge slight; antennae very long, when recurved extending to near apex of clavus. Pronotum approximately twice as wide as long, side margins moderately long, carinate; irregularly and transversely striate, shagreen anteriorly. Scutellum approximately equal in length to pronotum, shagreen, obscurely rugose posteriorly. Fore wing with three subapical cells, first subapical cell open, second and third subapical cells closed. Fore tibia with dorsal setal arrangement 1: 4; fore femur with a series of 12–14 fine setae distally on anterior surface; hind femur with apical setal formula 2 + 2 + 1 with the proximal and more dorsal of the middle setae slightly narrower than others.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore straight in dorsal aspect, with or without an apodeme on each side; pygophore lobes with several macrosetae and numerous short fine setae. Xth segment moderately long, cylindrical. Valve triangular. Subgenital plate moderately long, triangular, apical region digitate and lightly sclerotized; ventral surface with several short setae; outer margin of dorsal surface with a few moderately long fine setae on basal lobe and usually towards apex of plate. Style moderately long with basal apophysis and lateral lobe prominent; apical process moderately long, curved ventrally and tapered to apex or with apex foot-like, crenulate dorsally; region adjacent preapical lobe with a few sensory papilla ventrally

and a few short fine setae dorsally. Connective Y-shaped with stem produced posteriorly, not articulated with aedeagus at apex but with a long membranous connection from approximately midlength of stem; arms short. Aedeagus with shaft straight or curved posteroventrally, short with a pair of apical processes; gonopore situated at apex on posterior surface; basal apodeme large, either vertical and compressed anteroposteriorly or horizontal around base of shaft and compressed dorsoventrally.

Female genitalia with second valvulae united at midlength (arrowed in Fig. 14) and slightly expanded distally, without a basal prominence; dorsal teeth very fine, extending approximately one-quarter distance from apex to base of valvulae; dorsal sclerotized region short to long.

REMARKS. This genus is similar to *Favintiga* with the lateral margins of the pronotum moderately long and carinate and the hind femur with a setal formula 2 + 2 + 1; it differs, however, in the more rim-like fore margin of the head and the shagreen rather than longitudinally striate vertex. In the male genitalia the horizontal and dorsoventrally compressed basal apodeme of the aedeagus in some species, the produced stem of the connective and the distant relationship of the aedeagus and connective to each other are unique within the subfamily.

DISTRIBUTION. Asia as far south as Nepal to the Philippines (Luzon).

Key to species of *Parabolopona* (males only)

1 Aedeagus with a pair of apical processes; stem of connective without setae 2
– Aedeagus with a pair of basal processes; stem of connective with setae. (Philippines) ***luzonensis*** sp. n. (p. 46)
2 Aedeagus with apical processes directed away from base of shaft in lateral aspect, gonopore small 3
– Aedeagus with apical processes directed towards base of shaft in lateral aspect; gonopore large (Figs 16, 17) . . . . . ***ishihari*** sp. n. (p. 45)
3 Aedeagal shaft strongly curved (Fig. 8); connective with apex upturned and expanded laterally (Figs 7, 13). (Japan and Taiwan) . . . . . ***guttata*** (Uhler) (p. 43)
– Aedeagal shaft weakly curved (Fig. 20); connective with apex straight and narrow. (China) ***chinensis*** sp. n. (p. 45)

Parabolopona guttata (Uhler)
(Figs 1–14)

Parabolocratus guttatus Uhler, 1896: 291. LECTOTYPE ♂, JAPAN (USNM, Washington), here designated [examined].
Parabolopona guttata (Uhler) Matsumura, 1912: 288.

Length: ♂, 6·6–7·0 mm, mean 6·8 mm; ♀, 7·0–8·0 mm, mean 7·5 mm.

Colour and external characters as in generic description.

Male genitalia with pygophore lobes angularly rounded posteriorly; anterior margin of pygophore with a prominent apodeme on each side. Connective with apex upturned and expanded laterally. Style with apical process tapered to apex. Aedeagus with shaft elongate, curved posteroventrally and continued ventrally as a pair of elongate diverging processes; gonopore small; basal apodeme horizontal, compressed dorsoventrally around base of shaft (Fig. 12).

Female genitalia with posterior margin of pregenital sternite sinuate; second valvulae with dorsal sclerotized region short.

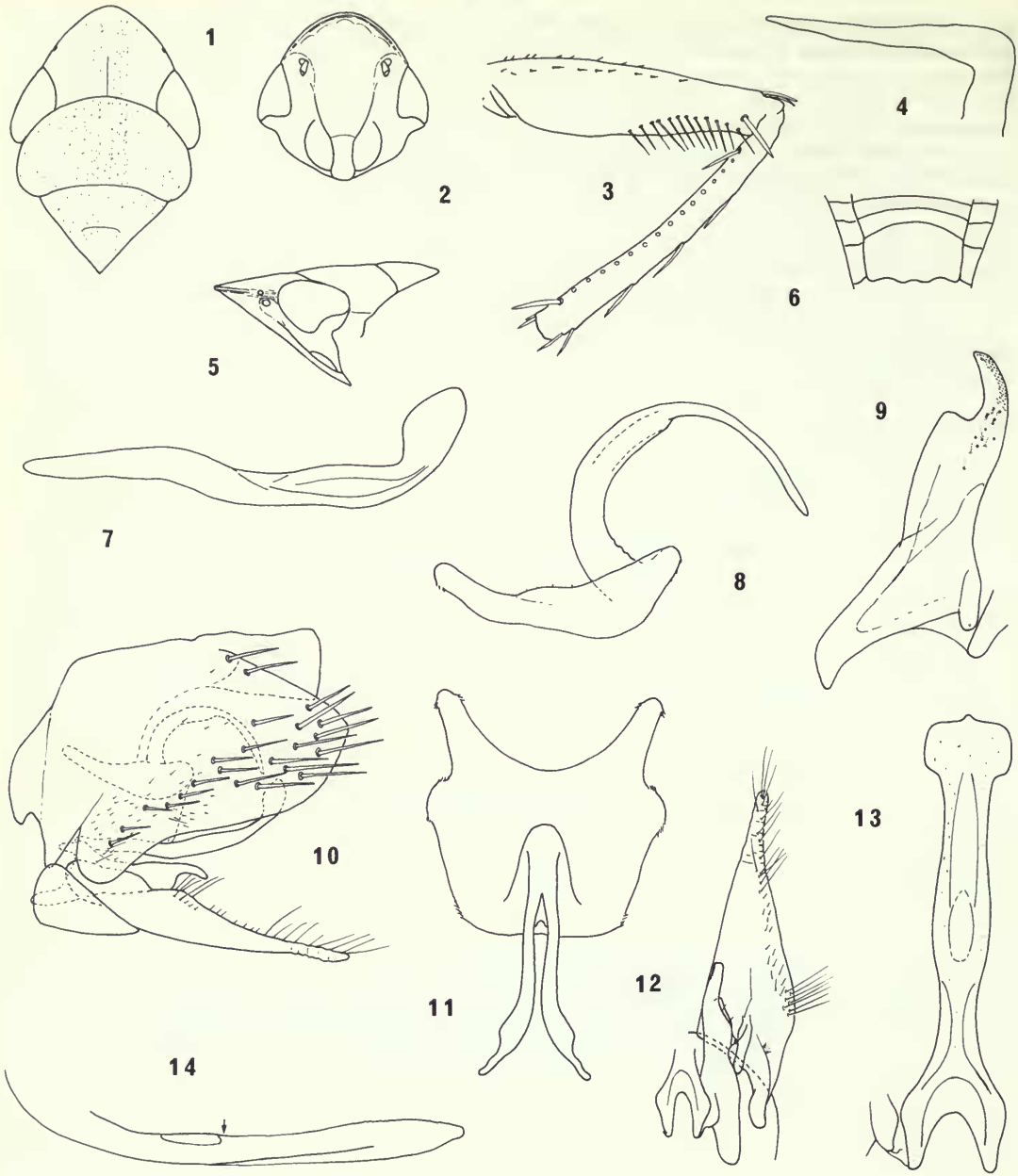
REMARKS. The male genitalia of *guttata* are similar to those of *chinensis* but the pygophore lobes are broader, the apex of the connective is upturned and expanded laterally and the aedeagal shaft is strongly curved with the apical processes expanded subapically without a small lateral protuberance basally.

DISTRIBUTION. Japan and Taiwan.

MATERIAL EXAMINED

Parabolocratus guttatus Uhler, lectotype ♂, **Japan**: Gifuyama, 7.vii.1888 [in Japanese] (USNM, Washington).

Japan: numerous specimens from Honshu and Kyushu (BMNH, London; EIHU, Sapporo; ELKU, Fukuoka); 1 ♀, Gifuyama, 7.vii.1888 [in Japanese] (USNM, Washington) (paralectotypes of *Parabolocratus guttatus* Uhler). **Taiwan**: 1 ♂, 1 ♀, Tattaka, 16, 19.viii.1921; 3 ♀, Hassenzan, Taichû-shû, Reimei, 13–14.vii.1932 (ELKU, Fukuoka).



Figs 1–14 *Parabolopona guttata*. 1, head and thorax, dorsal view; 2, face; 3, left fore leg, anterior view; 4, left anterior tentorial branch, lateral view; 5, head and thorax, lateral view; 6, ♀ pregenital segments, ventral view; 7, connective, lateral view; 8, aedeagus, lateral view; 9, left style, ventral view; 10, ♂ genital capsule, lateral view; 11, aedeagus, dorsal view; 12, left subgenital plate and style and connective, dorsal view; 13, connective, dorsal view; 14, second valvulae, lateral view.

Parabolopona ishihari sp. n.

(Figs 15–19)

Length: ♂, 6·6 mm; ♀, 7·5 mm.

Colour and external characters as in generic description.

Male genitalia with pygophore lobes acute posteriorly; anterior margin without an apodeme on each side. Connective with basal stem straight and narrow throughout length. Style with apical process tapered to apex. Aedeagus with shaft short and robust, more or less straight, terminating in a pair of moderately long ventrally directed processes; gonopore large; basal apodeme horizontal, compressed dorsoventrally around base of shaft (Figs 16, 17).

Female genitalia as in *guttata*.

REMARKS. The male genitalia of *ishihari* are similar to those of *guttata* but the pygophore lobes are more acute posteriorly, the apex of the connective is straight and narrow and the aedeagus has the processes directed towards the base of the shaft in lateral aspect and the gonopore large.

DISTRIBUTION. Japan.

MATERIAL EXAMINED

Holotype ♂, **Japan**: Northern Honshu, Towada, vii.1905 (EIHU, Sapporo).

Paratypes. **Japan**: 1 ♂, 1 ♀, same data as holotype (BMNH, London; EIHU, Sapporo).

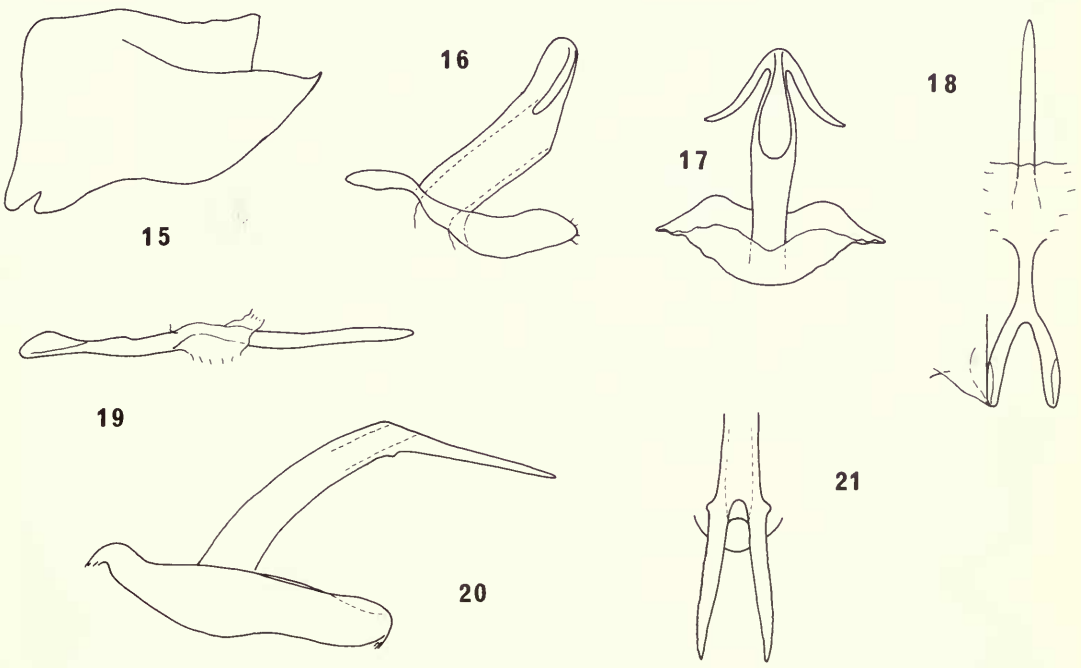
Parabolopona chinensis sp. n.

(Figs 20–21)

Length: ♂, 6·4 mm.

Colour and external characters as in generic description.

Male genitalia with pygophore and connective similar to *ishihari* (Figs 15, 18) but pygophore with an apodeme on each side anteriorly and posterior lobes less acute; remaining structures similar to *guttata* but



Figs 15–21 *Parabolopona* species. 15–19. *P. ishihari*. (15) ♂ pygophore, lateral view; (16, 17) aedeagus, lateral and posterior views; (18, 19) connective, dorsal and lateral views. 20, 21, *P. chinensis*. (20) aedeagus, lateral view; (21) apex of aedeagus, dorsal view.

connective straight and narrow apically and aedeagal shaft only slightly curved with apical processes evenly tapered from base to apex with a small lateral protuberance basally.

Female genitalia unknown.

REMARKS. This species is similar to *guttata* but differs in the male genitalia as noted above. From *ishihari* with a similarly shaped pygophore and connective (see above), *chinensis* differs in having the aedeagal processes directed away from the shaft in lateral aspect.

DISTRIBUTION. Central China.

MATERIAL EXAMINED

Holotype ♂, **China**: Hubei-Sichuan border, trail between Mo-Tai-Chi and Sang-Hou-Ken, 19.vii.1948 (*Gressitt & Djou*) (CAS, San Francisco).

Parabolopona luzonensis sp. n.

(Figs 22–27)

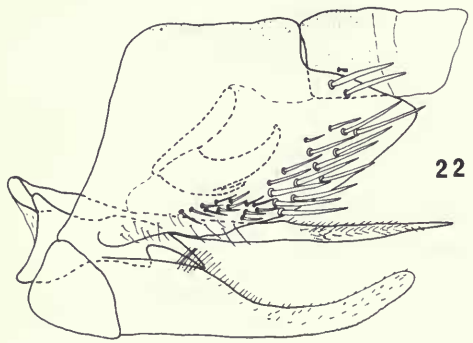
[*Parabolocratus guttatus* Uhler; Merino, 1936: 364. Misidentification.]

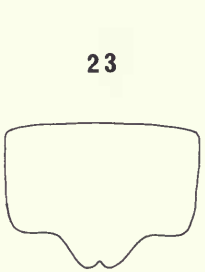
Length: ♂, 6·7–7·3 mm, mean 7·0 mm; ♀, 7·3–8·2 mm, mean 8·0 mm.

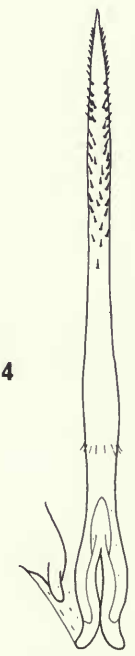
Colour and external characters as in generic description.

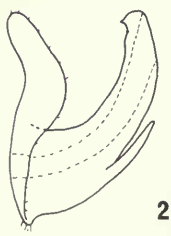
Male genitalia with pygophore lobes narrowly rounded posteriorly; anterior margin of pygophore without apodemes. Connective with stem nearly straight, tapered to acute apex; distal region with numerous short stout setae dorsally. Style with apical process foot-like apically in lateral aspect. Aedeagus with shaft short and robust, curved dorsally, apex with a slight lamellate expansion arising from anterior margin on each side; a pair of moderately long, dorsally directed processes, arising basally from posterior margin; gonopore moderately large; basal apodeme vertical, compressed anteroposteriorly.

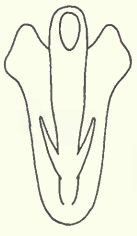
Female genitalia with posterior margin of pregenital sternite produced medially; second valvulae with dorsal sclerotized region elongate.











Figs 22–27 *Parabolopona luzonensis*. 22, ♂ genital capsule, lateral view; 23, ♀ pregenital sternite; 24, connective, dorsal view; 25, 26, aedeagus, lateral and posterior views; 27, apex of style, lateral view.

REMARKS. This species can be distinguished from other members of the genus by the foot-like apex of the style and the aedeagus with the processes arising basally rather than apically and the basal apodeme being vertical rather than horizontal. The female genitalia can be distinguished by the medially produced posterior margin of the pregenital sternite and the elongate dorsal sclerotized region of the second valvulae.

DISTRIBUTION. Philippines (Luzon).

MATERIAL EXAMINED

Holotype ♂, **Philippines**: Luzon, Baguio, Benguet (*Baker*) (USNM, Washington).

Paratypes. **Philippines**: 10 ♂, 19 ♀, same data as holotype (1 ♂, 1 ♀ in BMNH, London; remainder in USNM, Washington); 1 ♂, Luzon, Heights Plane (OSU, Columbus).

FAVINTIGA gen. n.

Type-species: *Parabolopona camphorae* Matsumura, 1912.

Brownish yellow dorsally, pale yellow ventrally; fore wings with a small brown spot near mid length of subcostal region, on apex of clavus and on apex of veins of clavus, apical cells and additional vein in subcostal region.

Head as wide as pronotum; anterior margin angularly rounded in profile, transversely striate, becoming carinate and rim-like medially; ocelli on margin, distant from eyes, visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length approximately twice length next to eyes, sides slightly convex; apex moderately broadly rounded; finely longitudinally striate, transversely striate anteriorly. Face slightly wider than long, more or less straight in profile; shagreen; clypeus moderately long, narrow, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture visible; lora large; antennal pit deep with inner margin obliquely inclined to clypeus; antennal ledge slight; antennae very long, extending to near apex of clavus. Pronotum approximately twice as wide as long, sides moderately long, carinate; finely and transversely striate, shagreen and more or less smooth anteriorly, Scutellum approximately equal in length to pronotum, shagreen, obscurely rugose posteriorly. Fore wings with three subapical cells, first subapical cell open, second and third subapical cells closed; an additional veinlet in subcostal region near to fifth apical cell. Fore tibia with dorsal setal arrangement 1 : 4; fore femur with a series of 15 fine setae distally on anterior surface; hind femur with apical setal formula 2 + 1 + 1 with the proximal and more dorsal of the middle setae slightly narrower than others.

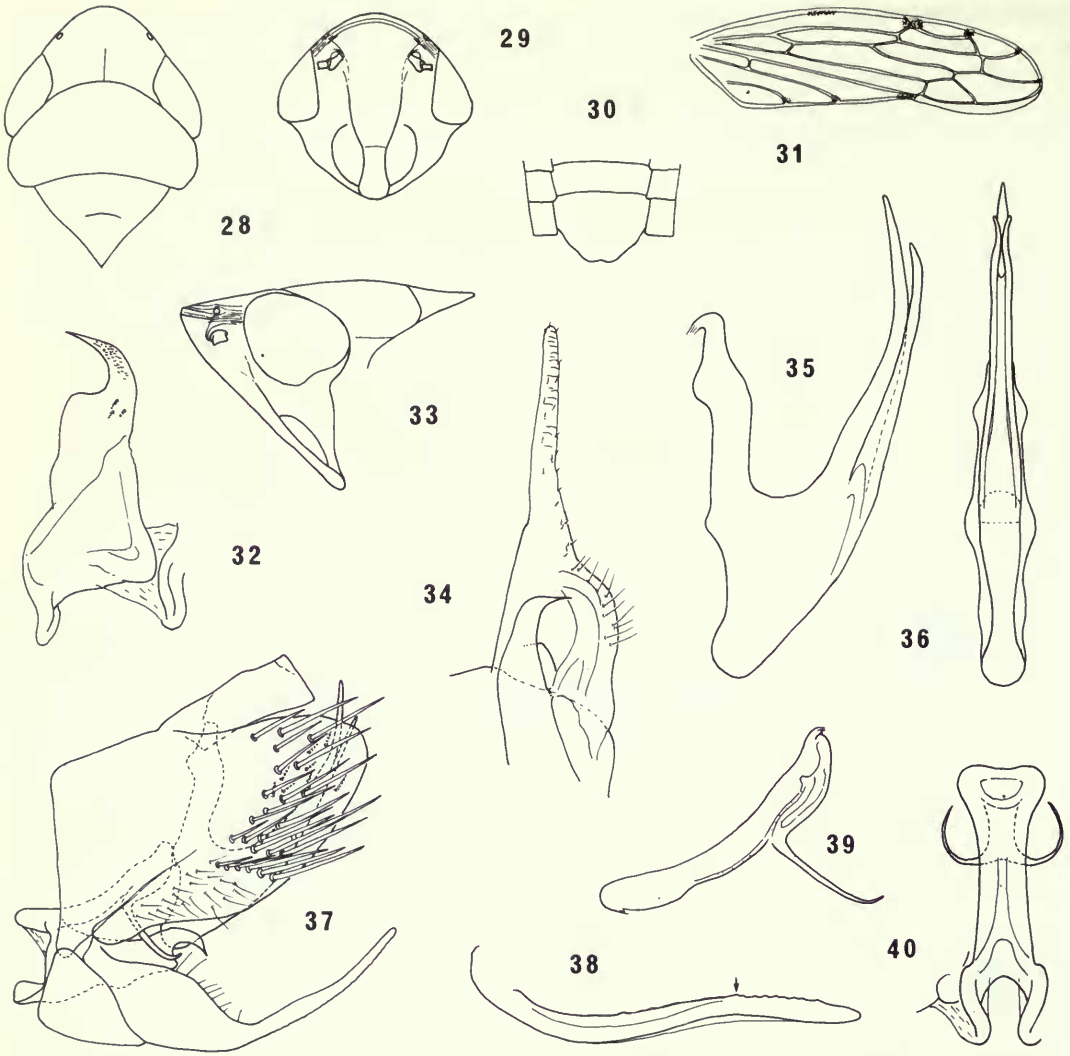
Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore straight dorsally, without apodemes; pygophore lobes with several macrosetae and short fine setae. Xth segment moderately long, cylindrical. Valve triangulate. Subgenital plates moderately long, distal half digitate and lightly sclerotized; dorsal surface with a few moderatly long fine setae on basal lobe and a few very short setae distally, Style moderately long with basal apophyses and lateral lobe prominent; apical process moderately long, curved ventrally and tapered apically, crenulate medially; a few sensory papilla medially adjacent lateral lobe. Connective Y-shaped; stem long, lateral margins keel-like dorsally; a bifurcate process distally on ventral surface; arms short. Aedeagus large, laterally compressed with an elongate preatrium; shaft curved dorsally and tapered apically with a pair of basal processes; gonopore situated at apex on posterior surface, elongate; basal apodeme elongate.

Female genitalia with second valvulae united at first dorsal tooth (arrowed in Fig. 38), narrow throughout length in lateral aspect with a slight dorsoanterior prominence; dorsal teeth very fine, extended over approximately distal third of valvulae; dorsal sclerified region elongate.

REMARKS. This genus is similar externally to *Parabolopona* (see remarks under that genus) but the long preatrium of the aedeagus and the processes on the connective are unique within the subfamily.

DISTRIBUTION. Japan and Amama-Oshima I. (south of Japan).



Figs 28–40 *Favintiga camphorae*. 28, head and thorax, dorsal view; 29, face; 30, ♀ pregenital segments, ventral view; 31, fore wing; 32, left style, ventral view; 33, head and thorax, lateral view; 34, left subgenital plate and apex of left style, dorsal view; 35, 36, aedeagus, lateral and posterior views; 37, ♂ genital capsule, lateral view; 38, second valvulae, lateral view; 39, 40, connective, lateral and dorsal views.

Favintiga camphorae (Matsumura) **comb. n.**

(Figs 28–40)

Parabolopona camphorae Matsumura, 1912: 288. LECTOTYPE ♀, JAPAN (EIHU, Sapporo), here designated [examined].

Length: ♂, 6 mm; ♀, 6·3–7·0 mm, mean 6·6 mm.

Colour and external characters as in generic description.

Male genitalia as in generic description with apical process of style with a small subapical tooth on medial surface and connective with each branch of ventral process elongate, tapered to apex and curved ventromedially. Aedeagus with shaft elongate; processes arising against posterior margin on each side, extended dorsally close to shaft and terminating a little before its apex, evenly tapered from base to apex.

Female genitalia with posterior margin of pregenital sternite convex; second valvulae as in generic description.

REMARKS. This species is distinguishable by its brownish yellow colour dorsally and its distinctive male genitalia as noted above.

DISTRIBUTION. Japan and Amami-Oshima I. (south of Japan).

MATERIAL EXAMINED

Parabolopona camphorae Matsumura, lectotype ♀, **Japan**: S. Kyushu, Kagoshima, 10.vii.1903 (EIHU, Sapporo).

Japan: 1 ♀, same data as lectotype (paralectotype of *Parabolopona camphorae* Matsumura); 1 ♂, 1 ♀, Honshu, Gifuyama, 7.vii.1888 (USNM, Washington); 3 ♀, Amami-Oshima I., Yakkachi, Sumiyo-mura, 17–18.vii.1933 (*Esaki & Yasumatsu*) (ELKU, Fukuoka, BMNH, London).

DRYADOMORPHA Kirkaldy

Dryadomorpha Kirkaldy, 1906: 335. Type-species: *Dryadomorpha pallida* Kirkaldy, by monotypy.
Paganalia Distant, 1917: 314. Type-species: *Paganalia virescens* Distant, by monotypy. **Syn. n.**
Zizyphoides Distant, 1918: 73. Type-species: *Zizyphoides indicus* Distant, by original designation. [Synonymized by Linnavuori 1978: 459.]
Rhombopsis Haupt, 1927: 22. Type-species: *Rhombopsis virens* Haupt, by monotypy. [Homonym of *Rhombopsis* Gardner, 1916: 456.]
Calotettix Osborn, 1934: 247. Type-species: *Calotettix metrosideri* Osborn, by original designation. [Homonym of *Calotettix* Bruner, 1908: 309.]
Yakunopona Ishihara, 1954: 12. Type-species: *Yakunopona yakushimensis* Ishihara, by original designation. **Syn. n.**
Rhombopsana Metcalf, 1967: 229. [Replacement name for *Rhombopsis* Haupt.] [Synonymized by Linnavuori, 1978: 459.]
Osbornitettix Metcalf, 1967: 229. [Replacement name for *Calotettix* Osborn.] **Syn. n.**
Khamiria Dlabola, 1979: 252. Type-species: *Khamiria mangrovecola* Dlabola, by original designation. **Syn. n.**

Yellow, greenish yellow or stramineous; fore wings with either a small brown spot at apex of both clavus and claval veins or inner margin of clavus bordered with brown. Legs spotted with brown.

Head wider than pronotum; anterior margin angularly or acutely rounded in profile, transversely striate, sometimes becoming carinate and rim-like in longer headed forms; ocelli on margin distant from eyes, not or slightly visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length 1·5–3·0 times length next to eyes, sides slightly convex to concave, apex fairly broadly angularly rounded to acute in longer headed forms; with a longitudinal depression; finely longitudinally striate, transversely striate anteriorly. Face elongate to only slightly longer than wide, shagreen; upper margin slightly depressed each side of mid line in longer headed forms forming a faintly striate longitudinal keel medially; face in profile convex to more or less straight, concave anteriorly in longer headed forms; clypeus elongate, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture distinct or indistinct; lora large; antennal pit deep with inner margin angularly rounded to clypeus, sometimes faintly rim-like and nearly carinate; antennal ledge very slight; antennae very long, extending to beyond apex of clavus when recurved. Pronotum approximately twice as wide as long, sides very short, without a carina; finely and transversely striate, obscurely rugose anteriorly. Scutellum approximately equal in length to pronotum, shagreen with posterior region obscurely rugose. Fore wing with three subapical cells, first subapical cell open, second and third subapical cells closed; one or two additional veinlets in subcostal region near to fifth apical cell. Fore tibia with dorsal setal arrangement 1:4; fore femur with a series of seven setae distally on anterior surface; hind femur with apical setal formula 2 + 1 + 1 with first proximal seta slender.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore straight dorsally, without apodemes; pygophore lobes with an oblique internal ledge terminating at ventroposterior margin with a darkly pigmented area, pygophore lobes with several macrosetae and short to moderately long fine setae. Xth segment moderately long, compressed dorsoventrally. Valve triangulate. Subgenital plates elongate, triangular; ventral surface of lateral lobe with a more heavily sclerotized region apically; outer margin with numerous long fine setae on dorsal and ventral surfaces; apex with a few short stout setae. Style moderately long with basal apophyses prominent; apical process moderately long, curved ventrally and tapered to acute or rounded apex, crenulate distally; a few sensory papilla ventrally, adjacent lateral lobe. Connective Y-shaped, stem short to moderately long with lateral margins keel-like dorsally; arms short. Aedeagus with shaft elongate, curved

dorsally and tapered to apex with two or four apical, dorsally directed processes; gonopore small, apical on posterior surface; basal apodeme moderately long and narrow.

Female genitalia with posterior margin of pregenital sternite with a small protuberance each side of mid line; second valvulae united at first dorsal tooth (arrowed in Fig. 56), slightly expanded distally, fairly robust with a dorsoanterior prominence; dorsal teeth robust, unaligned, extending to near mid length of valvulae; dorsal sclerotized region moderately long.

REMARKS. This genus is represented in the southern Palaearctic region by *Dryadomorpha pallida* Kirkaldy (also present in Africa, Asia and Australasia and described below), and *D. mangrovecola* (Dlabola) **comb. n.** Also present in Africa are *D. anacryon* (Linnavuori) **comb. n.** and *D. quadricornis* (Linnavuori) **comb. n.** (both species adequately described by Linnavuori, 1978: 462). Two species incorrectly described in *Zizyphoides* (= *Dryadomorpha*) are *Z. fraternus* Distant belonging to the genus *Stirellus* Osborn & Ball (Linnavuori, 1978: 460) and *Z. punctatus* Rao **syn. n.** of *Mahalana lugubris* Distant.

Externally *Dryadomorpha* is almost identical to *Rhutelorbus* and *Parohinka* but differs in lacking the pale patches on the head (usually present in *Parohinka* and sometimes in *Rhutelorbus*), the striate vertex and pronotum (rugose in *Rhutelorbus*), the lateral margins of the face adjacent to the eyes not being visible dorsally (just visible in *Rhutelorbus*) and the posterior margin of the female pregenital sternite being transverse (posterior corners produced in *Rhutelorbus* and *Parohinka* or broadly V- or U-shaped in *Parohinka*). The male genitalia are similar to *Karoseefa* but have the anterior margin of the pygophore straight dorsally and without apodemes. In the female genitalia the second valvulae are similar to those of *Parohinka* but with a dorsoanterior prominence present.

DISTRIBUTION. Ethiopian and southern Palaearctic region, Asia, Australasia and the Pacific.

Key to Asian, Australasian and Pacific species of *Dryadomorpha* (males only)

1 Aedeagus with apical processes strongly divergent (Fig. 52) 2
– Aedeagus with apical processes weakly divergent (Fig. 62) 3
2 Aedeagal processes slightly expanded at mid length in posterior aspect (Fig. 52); fore wings with a small brown spot at apex of both clavus and claval veins (Fig. 47). (Ethiopian, southern Palaearctic and Oriental regions as far south as Singapore and Java and northern and north-eastern Australia) . . . . . ***pallida*** Kirkaldy (p. 50)
– Aedeagal processes narrow throughout length in posterior aspect (Fig. 60); fore wings without a small brown spot at apex of both clavus and claval veins, sometimes inner margin of clavus brown (Fig. 58). (Marquesas Is., Cook Is. and northern Australia) . . ***metrosideri*** (Osborn) (p. 53)
3 Aedeagal shaft robust (Fig. 63); style with apical process tapered to apex (Fig. 61). (Malaya, Borneo (Sarawak and Sabah)) . . . . . ***robustipenis*** sp. n. (p. 54)
– Aedeagal shaft slender (Fig. 66); style with apical process rounded or foot-like apically (Figs 64, 65). (Borneo (Sarawak and Sabah)), New Guinea and Vanuatu . . . ***pacifica*** sp. n. (p. 55)

Dryadomorpha pallida Kirkaldy

(Figs 41–56)

Dryadomorpha pallida Kirkaldy, 1904: 336. Holotype ♀, AUSTRALIA, (BPBM, Honolulu) [examined].

Paganalia virescens Distant, 1917: 314. Lectotype ♀, SEYCHELLES (BMNH, London), designated by Webb (1980: 848) [examined]. **Syn. n.**

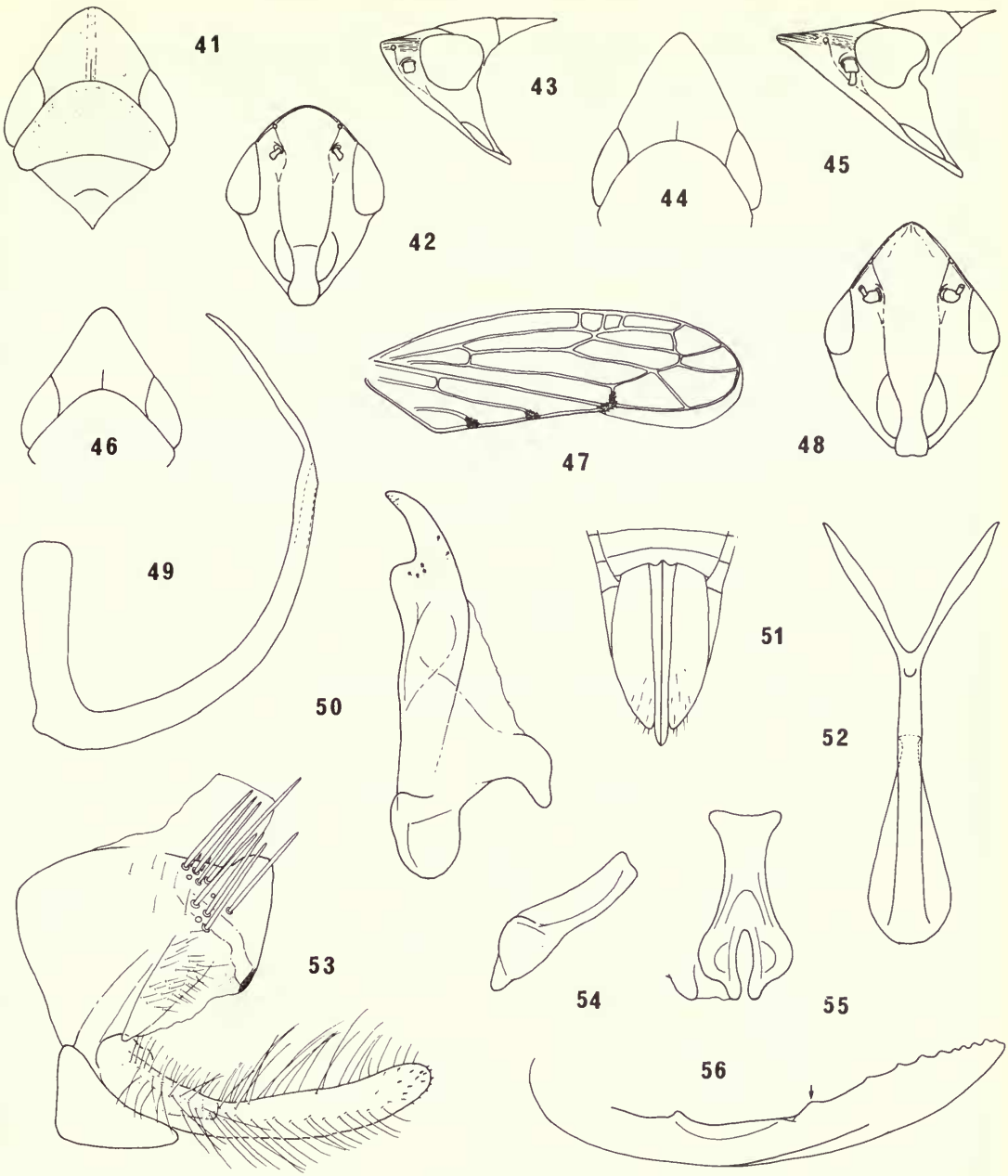
Zizyphoides indicus Distant, 1918: 73. LECTOTYPE ♀, INDIA (BMNH, London), here designated [examined]. **Syn. n.**

Rhombopsis virens Haupt, 1927: 23. Lectotype ♂, ISRAEL (HJM, Jena), designated by Webb (1980: 848) [examined]. **Syn. n.**

Rhombopsis viridis Singh-Pruthi, 1930: 34. LECTOTYPE ♂, INDIA (ZSI, Calcutta), here designated [examined]. **Syn. n.**

Rhombopsis chatterjeei Singh-Pruthi, 1934: 26. LECTOTYPE ♂, INDIA (FRI, Dehra Dun), here designated [examined]. **Syn. n.**

Platymetopius antennalis Lindberg, 1958: 181. Holotype ♂, CAPE VERDE IS. (ZMU, Helsinki) [examined]. **Syn. n.**



Figs 41–56 *Dryadomorpha pallida*. 41, head and thorax, dorsal view; 42, face; 43, head and thorax, lateral view; 44, head and pronotum, dorsal view; 45, head and thorax, lateral view; 46, head and pronotum, dorsal view; 47, fore wing; 48, face; 49, aedeagus, lateral view; 50, left style, ventral view; 51, apex of ♀ abdomen, ventral view; 52, aedeagus, posterior view; 53, ♂ genital capsule, lateral view; 54, 55, connective, lateral and dorsal views; 56, second valvulae, lateral view.

Yakunopona yakushimensis Ishihara, 1954: 13. Holotype ♀, JAPAN (ELKU,Fukuoka) [examined]. **Syn. n.**
Platymetopius australis Evans, 1966: 247. Holotype ♂, AUSTRALIA (ANIC, Canberra) [examined]. **Syn. n.**

Length: ♂, 4·5–5·6 mm, mean 5·1 mm; ♀, 5·3–6·6 mm, mean, 6·0 mm.

Colour as in generic description with rostrum and sometimes apex of clypellus scarlet; head and thorax rarely with testaceous marking (see 'Remarks' below), sometimes marked with stramineous or orange at apex of vertex and on each side at base of vertex, on lateral margins of clypeus and on anterior region of pronotum. Fore wing variably tinged with brown distally; apex of both clavus and claval veins with a small brown spot.

External characters as in generic description with vertex short to long, medial length 1·7–3·5 times length next to eyes; apex acute, narrowly rounded or fairly broadly angularly rounded, sides concave to slightly convex (see 'Remarks' below).

Male genitalia as in generic description with pygophore variable in shape (see 'Remarks' below). Style with apical process evenly tapered to acute apex, lateral lobe fairly strongly developed. Connective short. Aedeagus with shaft slender, apical processes slightly expanded at mid length, strongly divergent.

Female genitalia as in generic description.

REMARKS. Some specimens from India have the markings on the head and pronotum orange (see description) while one specimen from Australia has the head and thorax with testaceous markings. Considerable variation occurs in the shape of the head; usually the side margins of the vertex are nearly straight but a few specimens from India have the side margins considerably concave (Fig. 46). The face in profile is usually slightly convex to nearly straight but in one specimen from Australia the face is strongly concave. In the male genitalia slight variation occurs in the pygophore in the shape of the posterior lobes, the distal darkly pigmented region of the internal ledge and in the number of macrosetae (compare Fig. 53 from Java with Webb, 1980: 849, fig. 115 from Aldabra).

DISTRIBUTION. Afrotropical, southern Palaearctic and Oriental regions as far south as Singapore and Java (excluding Malaya and Sumatra) and from northern and north-eastern Australia.

MATERIAL EXAMINED

Dryadomorpha pallida Kirkaldy, holotype ♀, **Australia**: Queensland, Bundaberg, ix–xii.1904 (*Koebele*) (BPBM, Honolulu). *Paganalia virescens* Distant, lectotype ♀, **Seychelles**: Silhouette, 1908 (BMNH, London). *Zizyphoides indicus* Distant, lectotype ♀, **India**: Calcutta, on *Zizyphus jujuba* Miller, 23.vii.1912 (BMNH, London). *Rhombopsis virens* Haupt, lectotype ♂, **Israel**: 'Palestine', Ben-Shemen, 17–18.x.1925 (HJM, Jena). *Rhombopsis viridis* Singh-Pruthi, lectotype ♂, **India**: Punjab, Lyallpur, x.1929 (*Rahman*) (ZSI, Calcutta). *Rhombopsis chatterjeei* Singh-Pruthi, lectotype ♂, **India**: North Salem, Uduparani, on unspiked sandel, 29.i.1930 (*Chatterjee*) (FRI, Dehra Dun). *Platymetopius antennalis* Lindberg, holotype ♂, **Cape Verde Is.**: Fogo I., supra Fte Aleixo, 19.ii.1954 (*Lindberg*) (ZMU, Helsinki). *Yakunopona yakushimensis* Ishihara, holotype ♀, **Japan**: Yakushima, Anbo, 25.viii.1952 (*Takeya & Hirashima*) (ELKU, Fukuoka). *Platymetopius australis* Evans, holotype ♂, **Australia**: NW., Kimberley Research Station, via Wyndham, 23.viii. 1956 (*Langfield*) (ANIC, Canberra).

India: 1♂, 1 ♀, Punjab, Lyallpur, x.1929, 7.x.1929 (ZSI, Calcutta) (paralectotypes of *Rhombopsis viridis* Singh-Pruthi); 1 ♂, North Salem, Jawalagiri, 22.xii. 1930 (ZSI, Calcutta) (paralectotypes of *Rhombopsis chatterjeei* Singh-Pruthi); 1 ♀, Coorg, 9.ii.1930 (ZSI, Calcutta) (paralectotype of *Rhombopsis chaterjeei* Singh-Pruthi); 3 ♂, 3 ♀, Dehli, Indian Agricultural Research Institute, at light; 1 ♂, Bihar, Pusa, 14.vi.1931; 1 ♂, 6 ♀, Ludhiana, 25.xi.1976 (all in BMNH, London). **Nepal**: 3 ♂, 3 ♀, near Simra, Abhabbar, 180 m, 25–27.viii.1967; 1 ♀, near Birganj, Lothor, 135 m, 3.ix.1967 (all in CNC, Ontario); 1 ♀, Kathmandu, 1300–1400 m, 7–12.v.1966 (BPBM, Honolulu); 2 ♀, Arun Valley, below Tumlingtar, river Sabhaya, west shore, 460 m, 22.xii.1961 (BMNH, London). **Sri Lanka**: 1 ♂, Amiradhapura, at light, 22.iii.1953 (BMNH, London). **Bangladesh**: 1 ♂, Lawa Chera forest, Srimangal, 110 m, 27.ix.1961 (CAS, San Francisco). **China**: 1 ♀, Macao, i.1907; 1 ♂, 3 ♀, Fujian, Yungan, 4.viii-24.ix.1940 (all in BPBM, Honolulu). **Japan**: 1 ♂, 2 ♀, Tokara I., Nakanoshima, 25.v.–13.vi.1953; 1 ♂, Kyushu, Satamisaki, Osumi, 30.viii.1951 (all in ELKU, Fukuoka). **Hong Kong**: 1 ♂, Lantau I., Shek Pik Reservoir area, 21.vii.1964; numerous examples, Sai Kung Station, 30.i.1965; 9 ♂, 8 ♀, Taipokau, 20.vi.–6.vii.1964 (all in BPBM, Honolulu). **Taiwan**: 1 ♂, 1 ♀, Taipei Hsien Santiaoling, 100–400 m, 19.xi.1957 (BPBM, Honolulu). **Thailand**: 1 ♀, South Banna, Nakhon, 108 m, 5–10.v.1958; 1 ♂, Bangkok, at light, 4.xii.1957; 1 ♀, Chiangmai, Fang, 12–19.iv.1958 (all in BPBM, Honolulu). **Laos**: 1 ♀, Vientiane, at light, 8.v.1965 (BPBM, Honolulu). **Philippines**: 2 ♂, 1 ♀, Busuanga I., 4 km north of San Nicolas, at light, 21–24.v.1962, 1 ♂, Palawan, 3 km north-east of Tinabog, at light, 14.v.1962; 1 ♀, Palawan, Tarumpitao Point, at light, 26.v.1958; 1 ♀, Culion I., 6 km west of Culion, at light, 7.vi.1962 (all

in BPBM, Honolulu). **Singapore**: 4 ♂, 1 ♀, Mandai, mangrove, at light (BMNH, London). **Java**: 1 ♂, Bogor, at light, v.1954 (BMNH, London). **Australia**: 1 ♀, Western Australia, Kimberley Research Station, via Wyndham, 23.viii.1956 (ANIC, Canberra) (paratype of *Platymetopius australis* Evans); 1 ♀, New South Wales, Sydney (BMNH, London).

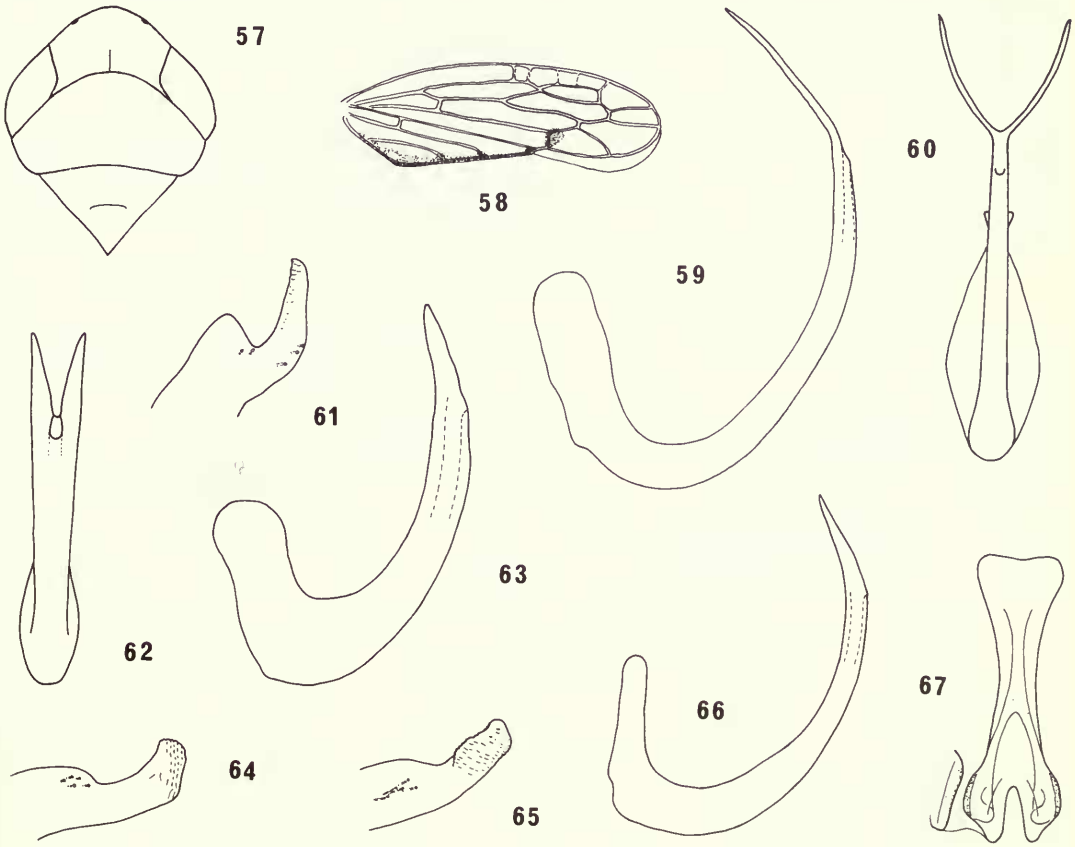
Dryadomorpha metrosideri (Osborn) **comb. n.**

(Figs 57–60)

Calotettix metrosideri Osborn, 1934: 247. Holotype ♀, MARQUESAS Is. (BPBM, Honolulu) [examined].
Calotettix metrosideri var. *tincta* Osborn, 1934: 248. LECTOTYPE ♀, MARQUESAS Is. (BPBM, Honolulu), here designated [examined]. **Syn. n.**
Calotettix lais Eyles & Linnavuori, 1974: 40. Holotype ♂, COOK Is. (IM, Auckland) [examined]. **Syn. n.**

Length: ♂, Marquesas Is., 6·3–6·7 mm, mean 6·5 mm; Cook Is., 6·8–7·4 mm, mean 7·2 mm; Australia, 5·5 mm; ♀, Marquesas Is., 7·0–7·7 mm, mean 7·2 mm; Cook Is., 7·8–8·5 mm, mean 8·1 mm.

Yellow or yellow tinged with green or orange; darker specimens with additional reddish and dark brown markings on pronotum and scutellum; some specimens (see 'Remarks' below) have face reddish, fore wings either marked with brown on inner margin of clavus and with a brown spot at base of fourth apical cell, or marked with brown bordering veins of clavus and veins *cu* and *m* and with a brown patch at apex of wing, and female pygophore with a dark brown patch posteriorly on each side.



Figs 57–67 *Dryadomorpha* species. 57–60. *D. metrosideri*. (57) head and thorax, dorsal view; (58) fore wing; (59, 60) aedeagus, lateral and posterior views. 61–63. *D. robustipenis*. (61) apex of left style, ventral view; (62, 63) aedeagus, posterior and lateral views. 64–67. *D. pacifica*. (64) apex of the left style, ventral view, Sarawak; (65) same, New Guinea; (66) aedeagus, lateral view; (67) connective, dorsal view.

External characters as in generic description with vertex short, approximately 1·5 times as long medially as next to eyes, sides slightly convex, apex fairly broadly angularly rounded.

Male genitalia as in *pallida* but aedeagal processes in posterior aspect narrow throughout length.

Female genitalia as in *pallida*.

REMARKS. In addition to the differences in size noted above specimens from different localities vary in the following ways: the single specimen from Australia has a medial longitudinal keel dorsally on the face (absent in other specimens), the clypeus reddish, some veins of the fore wing bordered with brown, and a brown patch at the apex of the fore wing; specimens from the Marquesas Is. have the inner margin of the fore wing variably marked with brown (Fig. 58) and the face sometimes marked with red, the thorax marked with red or brown and the female pygophore marked with brown posteriorly; the specimens from the Cook Is. are without markings.

This species can be distinguished from other members of the genus by its short head. The male genitalia are almost identical to those of *pallida*, differing only in the shape of the aedeagal processes as noted above.

DISTRIBUTION. Marquesas Is., Cook Is. and northern Australia.

MATERIAL EXAMINED

Calotettix metrosideri Osborn, holotype ♀, **Marquesas Is.**: Hiva Oa, Kopoa faa, miscel. sweeping, 831 m, 3.viii.1929 (*Mumford & Adamson*) (BPBM, Honolulu). *Calotettix metrosideri* var. *tincta* Osborn, lectotype ♀, **Marquesas Is.**: Hiva Oa, Feani Ridge, 1140 m, 22.i.1932 (*Le Bronnec*) (OSU, Columbus). *Calotettix lais* Eyles & Linnavuori, holotype ♂, **Cook Is.**: Rarotonga, 15.xii.1937 (IM, Auckland).

Marquesas Is.: numerous specimens from Hiva Oa, 630–1140 m, on *Weinmannia parviflora* G. Forster, *Reynoldsia* sp., *Glochidion ramiflorum* G. Forster or *Rapanea* sp., 1.viii–5.i.1932 (*Le Bronnec* or *Mumford & Adamson*) (paratypes of *Calotettix metrosideri* Osborn and paralectotypes of *Calotettix metrosideri* var. *tincta* Osborn) (BPBM, Honolulu; OSU, Columbus). **Cook Is.** 3 ♂, 1 ♀, Rarotonga I., Papua Creek, Vaimaanga, at light, 13.x.1975; 7 ♂, 3 ♀, Rarotonga I., Avatu Valley, at light, x.1975; 2 ♂, 1 ♀, Rarotonga I., Totokoitu Ridge, 210 m, 19.x.1975; 1 ♂, Rarotonga I., Totokoitu, at light, 14.x.1975 (all in DSIR, Auckland and BMNH, London). **Australia**: 1 ♂, Northern Territory, Darwin (JWE, Sydney).

Dryadomorpha viridia Osborn

Dryadomorpha viridia Osborn, 1934: 244. Holotype ♀, MARQUESAS Is. (BPBM, Honolulu) [examined].

Length: ♀, 6·7 mm.

Colour as in generic description with inner margin of clavus brown.

External characters as in generic description with vertex moderately long, medial length approximately twice as long as length next to eyes, apex acutely rounded, sides slightly convex.

Male genitalia unknown.

Female genitalia as in generic description.

REMARKS. The single known specimen of this species is tentatively regarded as distinct from *metrosideri*, differing only in its longer head.

DISTRIBUTION. Marquesas Is.

MATERIAL EXAMINED

Dryadomorpha viridia Osborn, holotype ♀, **Marquesas Is.**: Nuku Hiva I., Toovii, 750 m, 4.viii.1931, beating *Metrosideros collina* (J. R. & G. Forster) (*Le Bronnec & Tauraa*) (BPBM, Honolulu).

Dryadomorpha robustipenis sp. n.

(Figs 61–63)

Length: ♂, 5·2–6·0 mm, mean 5·5 mm; ♀, 6·0–6·3 mm, mean 6·1 mm.

Colour as in generic description with a small brown spot at apex of clavus and claval veins of forewing.

External characters as in generic description with vertex moderately long, medial length 2·5–3·0 times as long as length next to eyes, apex acutely rounded, sides slightly convex to slightly concave.

Male genitalia similar to *pallida* but connective moderately long and aedeagus more robust with apical processes shorter and only slightly divergent.

Female genitalia as in generic description.

REMARKS. This species closely resembles *pacifica* and is known to be sympatric with this species over part of its range in Sarawak and Sabah. It can be distinguished from *pacifica* in the male genitalia by the narrower apical process of the style, the more pronounced lateral lobe of the style and the more robust shaft of the aedeagus. From the similar but more northerly and southerly distributed *pallida* it differs in the male genitalia as noted above.

DISTRIBUTION. Malaya and Borneo (Sarawak, Sabah).

MATERIAL EXAMINED

Holotype ♂, **Sarawak**: foot of Mount Dulit, junction of rivers Tinjar and Lejok, at light, 1.x.1932 (*Hobby & Moore*) (BMNH, London).

Paratypes. **Malaya**: 1 ♂, Kuala Lumpur, Klang gates, 31.xii.1958 (*Quate*) (BPBM, Honolulu); 1 ♀, Kuala Lumpur, 13.iii.1939 (*Pendlebury*) (BMNH, London). **Borneo**: 3 ♂, 2 ♀, Sarawak, same data as holotype, 26.viii.–25.ix.1932; 1 ♂, Sarawak, Paya, Palah, at light, 4.xi.1964 (*Rothschild*) (all in BMNH, London); 1 ♂, Sarawak, Bau, lake area, 30.viii.1958 (*Maa*) (BPBM, Honolulu); 1 ♂, Sabah, Tawau, Quoin Hill, at light, 3–7.vii.1962 (Holtman); 1 ♂, Sabah, Tawau, Quoin Hill, Cocao Research Station, 22.viii.1962 (*Hirashima*) (all in BPBM, Honolulu).

Dryadomorpha pacifica sp. n.

(Figs 64–67)

Length: ♂, 5·2–6·5 mm, mean 5·6 mm; ♀, 5·5–6·4 mm, mean 5·9 mm.

Colour and external characters as in *robustipenis*.

Male genitalia similar to *robustipenis* but apical process of style broader apically and foot-like, or with a subapical prominence, and lateral lobe of style less pronounced and aedeagus with shaft narrower and tapered more at midlength to apex.

Female genitalia as in generic description.

REMARKS. In this species slight variation occurs in the shape of the apical process of the style and the processes of the aedeagus. In the specimens from Sarawak and Sabah the apical process of the style is foot-like and the aedeagal processes are narrow and nearly parallel, while specimens from New Guinea have the apical process of the style with a slight subapical prominence and the processes of the aedeagus stouter and more divergent. The significance of these differences cannot be ascertained at the present time.

This species closely resembles *robustipenis* and is known to be sympatric with this species over part of its range in Sarawak and Sabah. It can be distinguished from *robustipenis* in the shape of the style and aedeagus as noted above. It differs from the similar but more northerly and southerly distributed *pallida* in the longer connective and the more robust aedeagus with the apical processes shorter and only slightly divergent.

DISTRIBUTION. Borneo (Sarawak, Sabah), New Guinea and Vanuatu.

MATERIAL EXAMINED

Holotype ♂, **New Guinea**: Sarmi, W. to Hollandia, 20–23.vii.1959 (*Maa*) (BPBM, Honolulu).

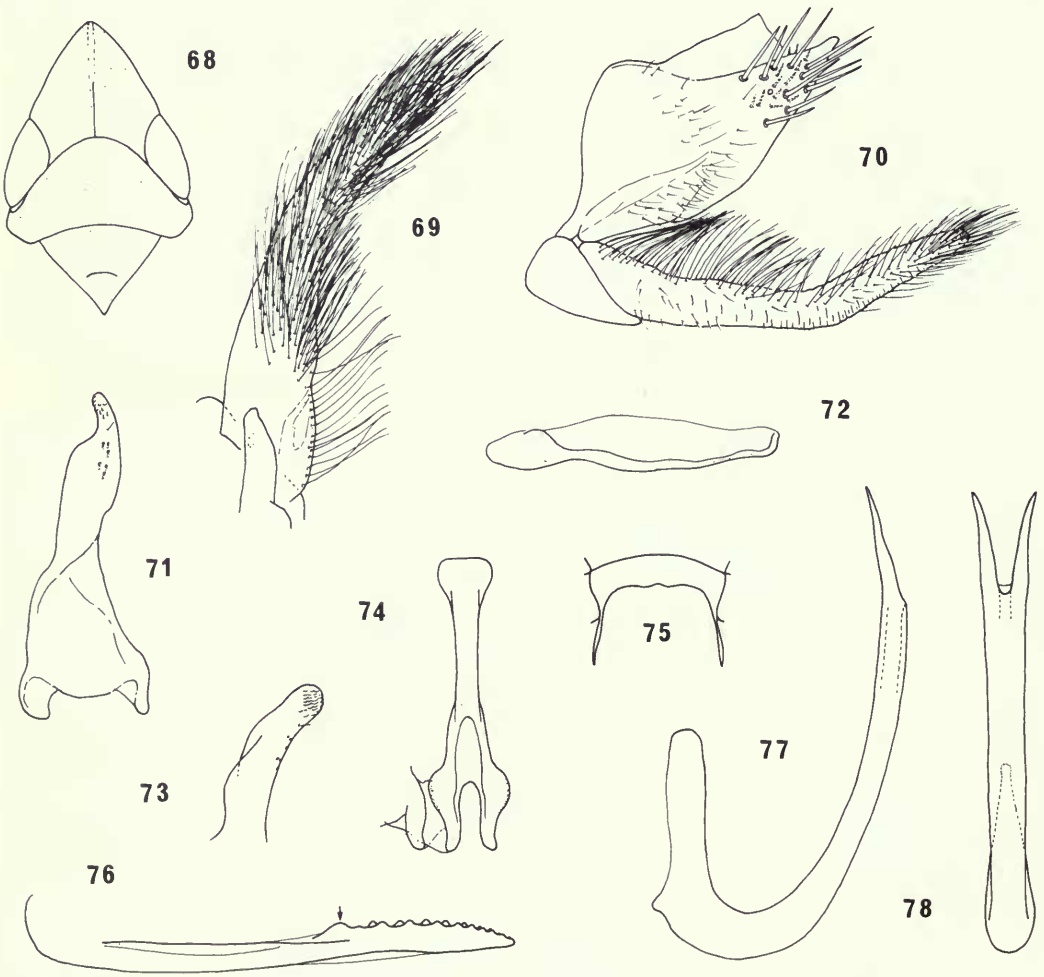
Paratypes. **Borneo**: 1 ♂, Sarawak, Bau district, lake area, 30.viii.1958 (*Maa*) (BPBM, Honolulu); 1 ♂, Sabah, Tawau, Quoin Hill, Cocoa Research Station, primary forest, 3.x.1962 (*Hirashima*); 1 ♂, Sabah, Tawau, Quoin Hill, 3–7.vii.1962 (*Holtman*) (BPBM, Honolulu). **New Guinea**: 1 ♂, Nabire, 5–50 m, at light, 25.viii–2.ix.1962 (*Sedlacek*); 1 ♂, mouth of river Tor, 4 km E. of Maffen, 19.vii.1959 (*Maa*); 1 ♂, Kokoda, 400 m, at light, 15–20.xi.1965 (*Sedlacek*); 1 ♀, Bodem, 100 m, 11 km SE. of Oerberfaren, at light, 7–17.vii.1959 (*Maa*) (all in BPBM, Honolulu); 15 ♂, same data as holotype (BPBM, Honolulu; BMNH, London). **Vanuatu**: 3 ♀, Espiritu Santo, Apouna river camp, 300 m, 9–12.ix.1971 (*Robinson*) (SAM, Adelaide); 1 ♂, Espiritu Santo, Narango, 90 m, vi.1960 (*Brandt*) (BPBM, Honolulu); 1 ♀, Santo I., 17.vi.1925 (*Buxton*) (BMNH, London).

RHUTELORBUS gen. n.

Type-species: *Rhutelorbus merinoi* sp. n.

Yellow or greenish yellow, sometimes with paler patches on head and thorax; fore wings with a small brown spot at apex of both clavus and claval veins.

Head wider than pronotum; anterior margin acutely rounded in profile, transversely striate, becoming finely carinate and rim-like medially; ocelli on margin, distant from eyes, not visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length approximately 2·5 times length next to eyes, sides slightly convex, apex acutely rounded; with a slight longitudinal depression; finely rugose. Face elongate, shagreen; lateral margin adjacent eye visible dorsally; upper margin slightly depressed each side of mid line, forming a faintly striate longitudinal keel medially; face in profile more or less straight or concave anteriorly; clypeus elongate, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture indistinct; lora large; antennal pit deep with inner margin angularly rounded to clypeus, rim-like and nearly carinate; antennal ledge slight; antennae very long, extending to beyond apex of clavus. Pronotum approximately twice as wide as long, side margins very short, without a carina; finely transversely rugose. Scutellum approximately equal in length to



Figs 68–78 *Rhutelorbus merinoi*. 68, head and thorax, dorsal view; 69, left subgenital plate and apex of left style, dorsal view; 70, ♂ genitale capsule, lateral view; 71, left style, ventral view; 72, connective, lateral view; 73, apex of left style, lateroventral view; 74, connective, dorsal view; 75, ♀ pregenital sternite, ventral view; 76, second valvulae, lateral view; 77, 78, aedeagus, lateral and posterior views.

pronotum, shagreen, obscurely rugose posteriorly. Fore wing with three subapical cells, first subapical open, second and third subapicals closed; one or two additional veinlets in subcostal region near to fifth apical cell. Fore tibia with dorsal setal arrangement 1 : 4; fore femur with a series of two or three fine setae distally on anterior surface; hind femur with apical setal formula 2 + 1 + 1 with first proximal seta slender.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore straight dorsally, without apodemes; pygophore lobes with several macrosetae and short fine setae. Xth segment moderately long, compressed dorsoventrally. Subgenital plate elongate, triangular with numerous moderate to long fine setae dorsally and several short to moderately long fine setae ventrally. Valve triangular. Style moderately long, narrow, with lateral lobe and basal apophyses prominent; apical process fairly short, curved ventrally, tapered to apex, crenulate apiçally; few sensory papilla and a single seta adjacent lateral lobe. Connective Y-shaped, stem elongate with lateral margins keel-like dorsally; arms short. Aedeagus with shaft elongate, curved dorsally with a pair of apical, dorsally directed processes; gonopore small, situated at apex; basal apodeme moderately long, narrow.

Female genitalia with posterior margin of pregenital sternite extended posteriorly; second valvulae united at first dorsal tooth (arrowed in Fig. 76), elongate, very slightly expanded distally; without a basal prominence; dorsal teeth robust, unaligned, extending over approximately distal third of valvulae.

REMARKS. This genus is similar externally to *Dryadomorpha* and some species of *Parohinka* but can be distinguished from these and other genera of the subfamily by the rugose vertex and pronotum, the lateral margins of the face adjacent to the eyes being visible dorsally, and by the extended posterior corners of the pregenital sternite (also present in some species of *Parohinka*).

DISTRIBUTION. Philippines, Malaya and Borneo (Sarawak).

Rhutelorbus merinoi sp. n.

(Figs 68–78)

Length: ♂, 5·6–6·5 mm, mean, 6·0 mm; ♀, 6·2–7·4 mm, mean 6·8 mm.

Colour and external characters as in generic description.

Male genitalia as in generic description with pygophore lobes acutely produced posteriorly and aedeagus with shaft narrow, slightly tapered from base to apex with apical processes fairly short (see 'Remarks' below).

Female genitalia with posterior margin of pregenital sternite extended posteriorly, maximum length as in Fig. 75, sometimes one-third this length.

REMARKS. The male specimen from the Philippines has the apical process of the style curved more ventrally and the apical processes of the aedeagus shorter than in other specimens.

DISTRIBUTION. Philippines, Malaya and Borneo (Sarawak).

MATERIAL EXAMINED

Holotype ♂, **Malaya**: Kuala Lumpur, at light, 16.x.1928 (*Corbett*) (BMNH, London).

Paratypes. **Philippines**: 1 ♀, Tawi Tawi, Lapid Lapid at Manalik Channel, at light, 19.xi.1961; 1 ♂, Tawi Tawi, Tarawakan, north of Batu Batu, at light, 13.xi.1961 (both in ZM, Copenhagen). **Malaya**: 1 ♀, Kuala Lumpur, at light, 18.i.1931 (*Pendlebury*) (BMNH, London); 2 ♂, 2 ♀, Kuala Lumpur, 24–31.xii.1958 (*Quate*); 4 ♂, 1 ♀, Kuala Lumpur, Klang gates, 31.xii.1958 (*Quate*); 1 ♀, Kuala Lumpur, 19 km south of Subang, 23.xii.1958 (*Quate*); 7 ♂, Kuala Tahan, 15–16.xii.1958 (*Quate*) (all in BPBM, Honolulu); 1 ♂, Selangor, at light, 19.iv.1932 (*Pendlebury*) (BMNH, London). **Borneo**: 1 ♂, no locality, 1898 (*Noualhier*) (MNHN, Paris); 1 ♂, Sarawak, foot of Mount Dulit, junction of R. Tinjar and Lejok, old secondary forest, at light, 29.viii.1932 (*Hobby & Moore*) (BMNH, London); 1 ♀, Sarawak, Bau District, Bidi, 19–240 m, at light, 2.iv.1958 (*Maa*); 1 ♀, Sarawak, Kuching, Santubong, 797–1500 m, 18–30.vi.1958 (*Maa*) (both in BPBM, Honolulu).

PAROHINKA gen. n.

Type-species: *Muirella longiseta* Melichar, 1914.

Yellow, greenish yellow or brownish yellow; head with yellow or whitish yellow patches, usually mottled with brown. Fore wings with a small brown spot at apex of both clavus and claval veins, often faint. Legs spotted with brown.

Head wider than pronotum; anterior margin angularly rounded in profile, transversely striate laterally, becoming finely carinate and usually rim-like medially, ocelli on margin distant from eyes, not visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length 1·5–4·0 times length next to eyes, sides slightly convex to slightly insinuate in longer-headed forms, apex acute to broadly angularly rounded; with a medial longitudinal depression; finely longitudinally striate, transversely striate anteriorly. Face elongate to only slightly longer than wide, shagreen; upper margin usually slightly depressed each side of mid line, forming a faintly striate longitudinal keel medially, indistinct in shorter-headed forms; face in profile convex to concave in longer-headed forms; clypeus elongate, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture distinct or indistinct; lora large; antennal pit deep with inner margin angularly rounded to clypeus and sometimes faintly rim-like and nearly carinate; antennal ledge absent; antennae very long, when recurved extending beyond apex of clavus. Pronotum approximately twice as wide as long, side margins very short, without a carina; finely and irregularly transversely striate, obscurely rugose anteriorly. Scutellum approximately equal in length to pronotum, shagreen with posterior region obscurely rugose. Fore wings with three subapical cells, first subapical cell open, second and third subapical cells closed; with a few additional veinlets in subcostal region near to fifth apical cell. Fore tibia with dorsal setal arrangement 1 : 4; fore femur with a series of seven setae distally on anterior surface; hind femora with apical setal formula 2+1+1 with first proximal seta slender.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with posterior margin of pygophore straight dorsally, without apodemes; pygophore lobes with a slight oblique internal ledge, usually not attaining posterior margin; posterior margin sometimes serrate and sometimes extended spine-like dorsally; lobes with several macrosetae and numerous short to moderately long fine setae. Xth segment moderate to long, compressed dorsoventrally, narrowing basally in lateral aspect. Valve triangular. Subgenital plate elongate, triangular with basal lobe relatively short and prominent; outer margin with numerous long to very long fine setae on dorsal and ventral surfaces; apex with few very short stout setae. Style short with basal apophyses indistinct; apical process short to moderately long, curved ventrally, tapered to apex or spatulate, ventral surface crenulate; lateral lobe prominent; few sensory papilla ventrally adjacent lateral lobe. Connective Y-shaped, stem moderate to very long, narrow, with lateral margins keel-like dorsally; arms short. Aedeagus assymetrical; shaft elongate, curved dorsally, sometimes recurved ventrally at apex, either of similar width throughout length, tapered to apex or expanded distally in lateral aspect, sometimes compressed anteroposteriorly; with from one to three processes distally; sometimes with an apical membranous region adjacent to gonopore; gonopore small, situated at or near apex on left or right lateral surface within a species or on posterior surface; basal apodeme short to moderately long, compressed laterally or anteroposteriorly.

Female genitalia with posterior margin of pregenital sternite either broadly V-shaped medially or with posterior corners extended posteriorly. Second valvulae united at or before first dorsal tooth (arrowed in Figs 110, 121, 133, 148), expanded distally, fairly robust, without a dorsoanterior prominence; dorsal teeth fine to robust, unaligned, extending 0·25–0·40 times distance from apex to base of valvulae; dorsal sclerotized region moderately long.

Remarks. This genus is almost identical externally to *Dryadomorpha* but can usually be distinguished by the pale patches on the anterior margin of the head. Also similar externally to *Rhutelorbus* (see 'Remarks', p. 57). In the male genitalia the pygophore has an internal ledge as in *Dryadomorpha*, *Karoseefa* and *Oceanopona*, but the asymmetrical aedeagus is not found in any other genus of the subfamily. In the female genitalia the extended posterior corners of the pregenital sternite of some species (*dulita*-group) are as in *Rhutelorbus* and the second valvulae are as in *Rhutelorbus*, *Karoseefa* and *Oceanopona*.

On the basis of the male and femal genitalia *Dryadomorpha* can be divided into two groups. The *dulita*-group (*dulita*, *brevicephala*, *philippina*, *recurva*, *apicalis*, *longiseta* and *malayensis*) differs from the *morona*-group (*morona*, *sinuata*, *trispicata*, *lotophagorum* and *spinosa*) in having the apex of the aedeagal shaft continued as a process on one side and the posterior corners of the female pregenital sternite extended posteriorly either process-like or lobe-like in *dulita*.

Distribution. From NE. India to the Philippines and South East Asia and south to New Guinea and the Pacific islands. The *dulita*-group extends as far south as Indonesia, while the *morona*-group is found in New Guinea and eastwards to the Cook Is.

Key to species of *Parohinka*

Males

1 Aedeagus with apex of shaft continued as a process on one side (Figs 105, 125). (Oriental region and south to Indonesia) 6
– Aedeagus with apex of shaft not continued as a process on one side. (New Guinea and eastwards to the Cook Is.) 2
2 Aedeagus with two processes (both lateral or one lateral and one posterior) 3
– Aedeagus with three processes (two lateral and one posterior) 5
3 Aedeagus with shaft in lateral aspect of similar width throughout length or narrower apically; with two lateral processes directed ventroanteriorly 4
– Aedeagal shaft in lateral aspect expanded apically; with one lateral process directed ventroposteriorly and one posterior process directed ventroanteriorly (Figs 93, 94) ***lotophagorum*** (Kirkaldy) (p. 63)
4 Aedeagal shaft in lateral aspect evenly curved from base to apex (Fig. 84) . . ***morona*** sp. n. (p. 60)
– Aedeagal shaft in lateral aspect sinuate apically (Fig. 86) . . . . . ***sinuata*** sp. n. (p. 61)
5 Posterior process of aedeagus short, approximately half length of lateral processes (Fig. 91) ***trispicata*** sp. n. (p. 61)
– Posterior process of aedeagus long, similar in length to lateral processes (Fig. 102) ***spinosa*** sp. n. (p. 64)
6 Apex of aedeagal shaft curved ventrally (Fig. 124). (Borneo (Sarawak)) . . ***recurva*** sp. n. (p. 67)
– Apex of aedeagal shaft curved dorsally 7
7 Aedeagus with one process 8
– Aedeagus with two or three processes 9
8 Connective approximately equal in length to style. (Malaya) . . . ***malayensis*** sp. n. (p. 70)
– Connective approximately 1·5 times length of style. (NE. India to Indonesia) ***longiseta*** (Melichar) (p. 68)
9 Aedeagus with two processes. (Borneo (Sarawak, Sabah)) . . . . . ***apicalis*** sp. n. (p. 68)
– Aedeagus with three processes 10
10 Lateral aedeagal processes short, arising from near posterior margin of shaft (Fig. 119). (Philippines). . . . . ***philippina*** sp. n. (p. 66)
– Lateral aedeagal processes moderately long, arising from near anterior margin of shaft (Fig. 107) 11
11 Aedeagal shaft in lateral aspect narrowly club-shaped (Fig. 107). (Borneo (Sarawak)) **dulita** sp. n. (p. 64)
– Aedeagal shaft in lateral aspect of similar width throughout length (Fig. 115). (Borneo (Sarawak, Sabah)). . . . . ***brevicephala*** sp. n. (p. 66)

Females

The following key is incomplete because females of *morona*, *sinuata* and *trispicata* are indistinguishable (grouped together under couplet 2) and *spinosa* and *recurva* are known only from the male.

1 Posterior corners of pregenital sternite extended posteriorly, process-like or lobe-like. (Oriental region as far south as Indonesia) 3
– Posterior corners of pregenital sternite not extended posteriorly as above. (New Guinea and eastwards to the Cook Is.) 2
2 Posterior margin of pregenital sternite oblique and nearly straight each side of mid line (Fig. 83) ***morona*** sp. n. (p. 60), ***sinuata*** sp. n. (p. 61), ***trispicata*** sp. n. (p. 61)
– Posterior margin of pregenital sternite angled at mid length each side of mid line (Figs 96, 97) ***lotophagorum*** (Kirkaldy) (p. 63)
3 Posterior corners of pregenital sternite extended process-like 4
– Posterior corners of pregenital sternite lobe-like (Fig. 109). . . . . ***dulita*** sp. n. (p. 64)
4 Vertex with medial length 0·5–0·9 times basal width between eyes 5
– Vertex with medial length 1·0–1·2 times basal width between eyes 6
5 Vertex with medial length 0·5 times basal width between eyes. Extended posterior corners of pregenital sternite short (Fig. 118). (Borneo (Sarawak)) . . . . ***brevicephala*** sp. n. (p. 66)
– Vertex with medial length 0·5–0·9 times basal width between eyes. Extended posterior corners of pregenital sternite long (Fig. 139). (NE. India to Indonesia) . . . ***longiseta*** (Melichar) (p. 68)
6 Pale to greenish yellow. Second valvulae fairly broad (Fig. 121). (Philippines) ***philippina*** sp. n. (p. 66)
– Sordid to brownish yellow. Second valvulae narrow (Fig. 148). (Malaya) . ***malayensis*** sp. n. (p. 70)

Parohinka morona sp. n.

(Figs 79–85)

Length: ♂, 5·9–6·3 mm, mean 6·1 mm; ♀, 6·6 mm.

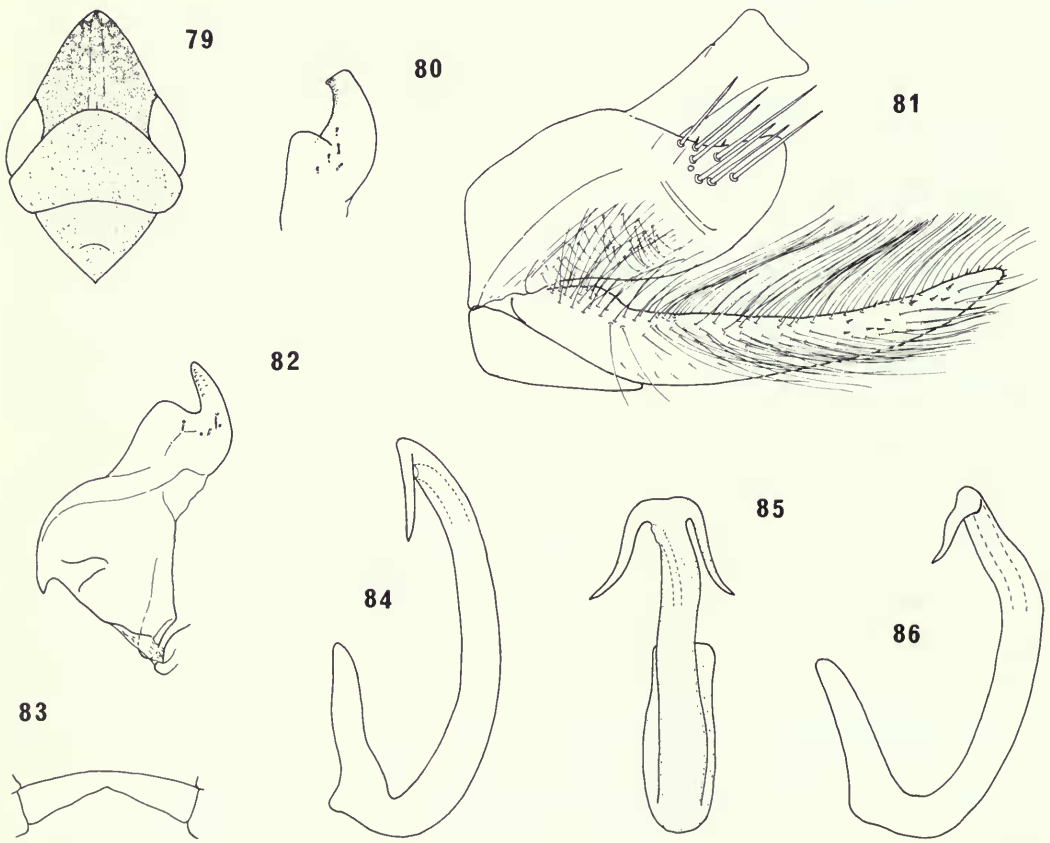
Pale to greenish yellow. Vertex, dorsal region of face and sometimes medial region of pronotum mottled with brown. Inner margin of fore wing sometimes tinged with brown (see 'Remarks' below); other markings as in generic description.

External characters as in generic description with vertex long, medial length 2·8–3·5 times length next to eyes and 1·0–1·2 times basal width between eyes. Face longer than wide with upper medial keel present; clypeus elongate.

Male genitalia as in generic description with pygophore moderately long. Xth segment extending to or slightly beyond posterior margin of pygophore. Connective moderately long (as in *malayensis*, Fig. 145). Style with apical process digitate, apex of process truncate in medial aspect. Aedeagus with shaft in lateral aspect tapered gradually from base to apex and terminating in a pair of ventroanteriorly directed processes; shaft sinuate in posterior aspect; gonopore situated laterally immediately below apical processes.

Female genitalia with posterior margin of pregenital sternite shallowly V-shaped (see 'Remarks' below); second valvulae united at first dorsal tooth; teeth robust, extending to approximately 0·4 times distance from apex to base of valvulae (as in *longiseta*, Fig. 133).

REMARKS. Some of the specimens examined of this species have a brown medial longitudinal band dorsally, from the head to the apex of the fore wings.



Figs 79–86 *Parohinka* species. 79–85. *P. morona*. (79) head and thorax, dorsal view; (80) apex of left style, ventromedial view; (81) ♂ genital capsule, lateral view; (82) left style, ventral view; (83) ♀ pregenital sternite, ventral view; (84, 85) aedeagus, lateral and posterior views. 86. *P. sinuata*, aedeagus, lateral view.

The following four species and *morona* form a distinct group based on distribution (New Guinea and east to the Cook Is.) and also on the shape of the male and female genitalia (see 'Remarks' under generic description, p. 58). On external appearance and in the female genitalia *morona* is identical to *trispicata* and *sinuata*. Females of the three species are therefore included in their respective type-series as they were taken at the same localities as the males therein and there being no sympatry between the males of the three species samples. Only slight differences in the shape of the pregenital sternite distinguishes females of *morona*, *sinuata* and *trispicata* from *lotophagorum*; in the first three species the posterior margin of the pregenital sternite is oblique and almost straight each side of the mid line while in *lotophagorum* it is angled at mid length each side of the mid line. In external appearance *morona* is similar to *spinosa* and is sympatric with this species over part of its range in Papua New Guinea. Females of *spinosa* are unknown. In the male genitalia *morona* differs from the above four species in having the posterior margin of the pygophore non-serrate, the aedeagus with two apical processes and the aedeagal shaft evenly curved from base to apex in lateral aspect.

DISTRIBUTION. New Guinea (Irian Jaya, Papua New Guinea).

MATERIAL EXAMINED

Holotype ♂, **New Guinea**: Irian Jaya, Cyclops Mts, Sabron, camp 2, 660 m, vii.1936 (*Cheesman*) (BMNH; London)

Paratypes. **New Guinea**: 1 ♂, 1 ♀, Irian Jaya, Torricelli Mts, Mokai Vill., 750 m, 8–15.xii.1958 (*Brandt*); 2 ♂, I.J., 40 km north of Baliem Val., 1300 m, at light, 5–11.xi.1961 (*Quate*); 1 ♂, Papua New Guinea, Swart Val., Karubaka, 1450 m, 17.xi.1958 (*Gressitt*) (all in BPBM, Honolulu).

Parohinka sinuata sp. n.

(Fig. 86)

Length: ♂, 6·2–6·6 mm, mean 6·4 mm; ♀, 7·5 mm.

Colour and external characters as in *morona* with medial length of vertex 2·7–3·0 times length next to eyes and 0·8–1·1 times basal width between eyes.

Male genitalia as in *morona* but aedeagal shaft apically with processes slightly shorter.

Female genitalia as in *morona*.

REMARKS. This species is closely related to *morona* differing only in the shape of the aedeagus as noted above (see also 'Remarks' under *morona*, p. 60).

DISTRIBUTION. New Guinea (Papua New Guinea)

MATERIAL EXAMINED

Holotype ♂, **New Guinea**: Papua New Guinea, Lae, Singuawa R., 147° 10′ E, 6° 45′ S, 30 m, at light, Kunai grass, 8.iv.1966 (*Wilkes*) (BPBM, Honolulu).

Paratypes. **New Guinea**: 1 ♂, 1 ♀, same data as holotype (BMNH, London; BPBM, Honolulu); 1 ♂, P.N.G., Wau, Morobe District, 1250 m, 23.i.1963 (*Sedlacek*) (BPBM, Honolulu).

Parohinka trispicata sp. n.

(Figs 87–91)

Length: ♂, 5·6–6·0 mm, mean 5·8 mm; ♀, 6·4–7·0 mm, mean 6·7 mm.

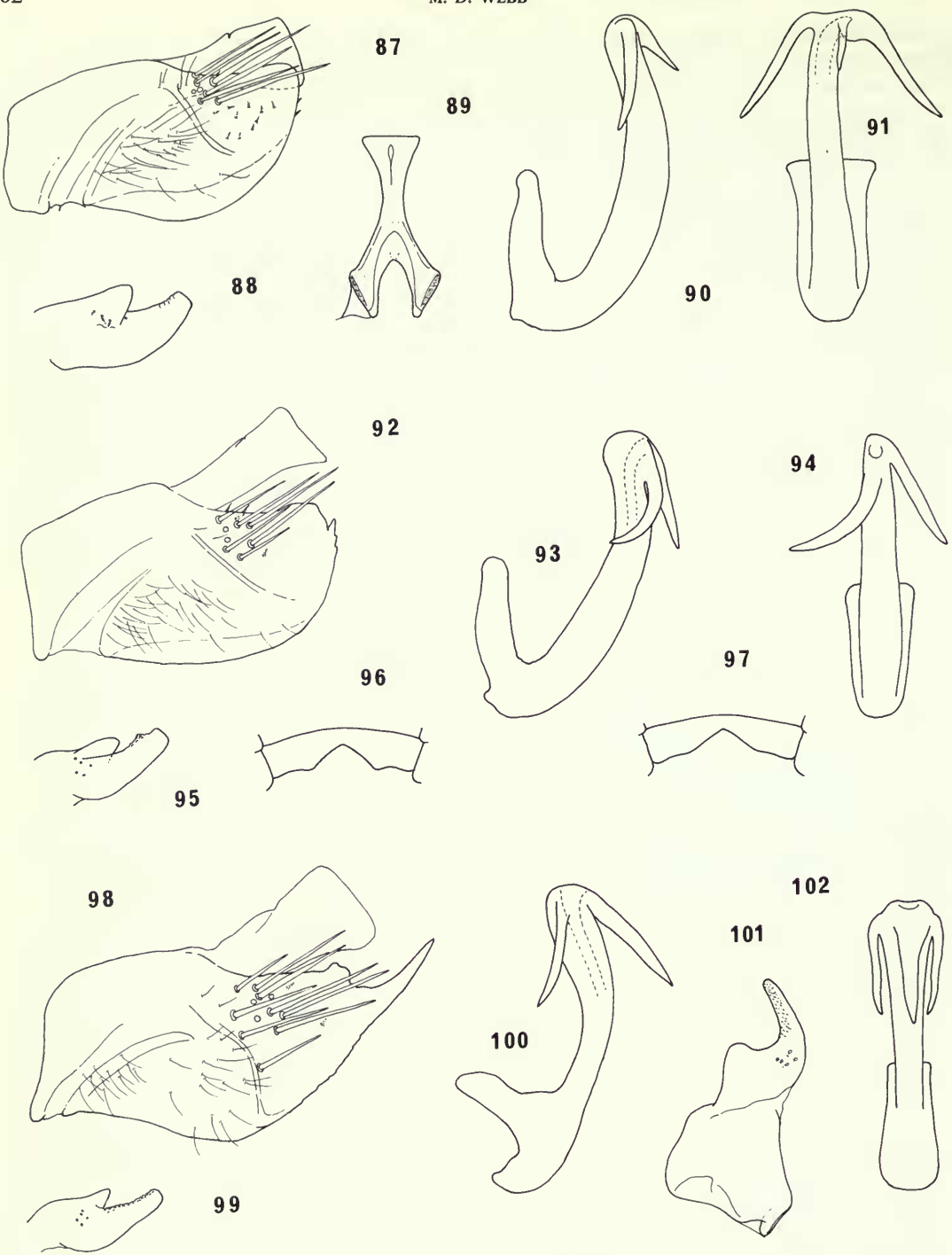
Colour and external characters as in *morona* with medial length of vertex 2·5–3·0 times length next to eyes and approximately equal to basal width between eyes.

Male genitalia similar to *morona* but apex of aedeagus with a small additional process on one side adjacent to gonopore.

Female genitalia as in *morona*.

REMARKS. This species is identical externally and in the female genitalia to *morona* and *sinuata* (see 'Remarks' under *morona*, p. 60). In the male genitalia it differs from *morona* and *sinuata* in having three processes on the aedeagus.

DISTRIBUTION. New Guinea (Irian Jaya, Papua New Guinea) and Solomon Is.



Figs 87–102 *Parohinka* species. 87–91. *P. trispicata.* (87) ♂ pygophore and Xth segment, lateral view; (88) apex of style, ventromedial view; (89) connective, dorsal view; (90, 91) aedeagus, lateral and posterior views; 92–97. *P. lotophagorum.* (92) ♂ pygophore and Xth segment, lateral view; (93, 94) aedeagus, lateral and posterior views; (95) apex of left style, ventromedial view; (96, 97) ♀ pregenital sternite, ventral view; 98–102. *P. spinosa.* (98) ♂ pygophore and Xth segment, lateral view; (99) apex of left style, ventromedial view; (100) aedeagus, lateral view; (101) left style, ventral view; (102) aedeagus, posterior view.

MATERIAL EXAMINED

Holotype ♂, **Solomon Is.**: Kolombangara, Pepele, 30 m, 6.ii.1964 (*Shanahan*) (BPBM, Honolulu)

Paratypes. **New Guinea**: 1 ♂, Irian Jaya, 10.xi.1944 (*Aarons*) (CAS, San Fransisco); 3 ♂, 1 ♀, I.J., Hollandia, Binnen, 100 m, at light, 31.x.1958 (*Gressitt*); 1 ♀, I.J., Hollandia, at light, 28.ii.1960 (*Maa*); 1 ♂, Papua New Guinea, Adelbert Mts, Wanuma, 800–1000 m, at light, 27.x.1958 (*Gressitt*) (all in BPBM, Honolulu). **Solomon Is.**: 10 ♂, 4 ♀, Kolombangara, Pepele, 30 m, 6, 10, 15.ii.1964 (*Shanahan*) (BPBM, Honolulu; BMNH, London)

Parohinka lotophagorum (Kirkaldy) **comb. n.**

(Figs 92-97)

Dryadomorpha lotophagorum Kirkaldy, 1907: 41. 1 ♂, 1 ♀ syntypes, FIJI: Viti Levu, Ruwa, iii–vi (*Muir*) (lost).

NEOTYPE ♂, FIJI (BPBM, Honolulu), here designated [examined].

Length: ♂, 5·4–6·5 mm, mean 6·0 mm; ♀, 6·6–7·6 mm, mean 7·0 mm.

Pale to greenish yellow. Vertex and dorsal region of face mottled with brown. Fore wings sometimes tinged with pinkish orange. Other markings as in generic description.

External characters as in *morona* with medial length of vertex 2·4–3·0 times length next to eyes.

Male genitalia similar to *morona* but posterior margin of pygophore serrate and apical process of style with a subapical prominence in medial aspect. Aedeagus with shaft tapered from base to near apex and expanded slightly at apex in lateral aspect; a more or less straight process arising at apex on one side, directed ventrolaterally and another process arising on opposite side to first and slightly below apex, strongly curved ventrolaterally; gonopore apical on posterior surface.

Female genitalia with posterior margin of pregenital sternite V-shaped medially; second valvulae as in *morona*.

REMARKS. The type-series of *lotophagorum* was listed as missing at the time when the Hawaiian Sugar Planters' Association collection was transferred to the Bishop Museum and is presumed lost. The specimens described above fit the original description almost exactly, only the darker brown spots on the lateral margins of the clypeus, mentioned by Kirkaldy, are not clear.

In external appearance this species is similar to *morona*, *sinuata*, *trispicata* and *spinosa* and is sympatric with *trispicata* over part of its range in the Solomon Is. In the female the pregenital sternite is slightly different in shape to that of *morona*, *sinuata* and *trispicata* (see 'Remarks' under *morona*, p. 60), and in the male genitalia both this species and *spinosa* can be distinguished from other members of the genus by the serrate posterior margin of the pygophore. From *spinosa* it differs in the male genitalia having the posterior margin of the pygophore without a spine-like process, the style with the apical process more robust with a preapical prominence, and the aedeagus with two processes.

DISTRIBUTION. New Guinea (Irian Jaya, Papua New Guinea), Solomon Is., Vanuatu, Fiji and Niue Is.

MATERIAL EXAMINED

Dryadomorpha lotophagorum Kirkaldy, neotype ♂, **Fiji**: Lau group, Ono-i-Lau, Nukuni, 0–50 m, 24.ii.1971 (*Krauss*) (BPBM, Honolulu).

New Guinea: 1 ♂, 1 ♀, Irian Jaya, Waigeu, Camp Nok., 750 m, iv.v.1938 (*Cheesman*) (BMNH, London); 1 ♂, I.J., Japen I., SSE. Sumberbaba, Dawai R., at light, 22.x.1962 (*Holtmann*); 2 ♂, 1 ♀, I.J., Waris, S. of Hollandia, 450–500 m, m.v. light-trap, 1–15.viii.1959 (*Maa*); 1 ♂, 2 ♀, I. J., Bodem, 100 m, 11 km SE. of Oerberfaren, m.v. light-trap, 10.vii, 16.xii.1959 (*Maa*); 3 ♂, Papua New Guinea, Kokoda, 400 m, light-trap, malaise trap, 15–20.xi.1965 (*Sedlacek*) (all in BPBM, Honolulu); 1 ♂, P.N.G., Madang Dist., Finisterre Mts, Damanti, 105 m, stn no. 46, 2–11.x.1964 (Bacchus) (BMNH). **Bismark Archipeligo**: 4 ♂, New Britain, Gazelle Pen., Gaulim, 130 m, 140 m, at light, 23–28.x, 19–20.xi.1962 (*Sedlacek*); 1 ♂, N.B., Gazelle Pen., Mt Sinewit, 900 m, at light, 5–14.xi.1962 (*Sedlecek*) (all in BPBM, Honolulu). **Solomon Is.**: 1 ♀, 2 specimens (abdomens missing), Guadalcanal, Mt Austen, 15.viii.1966 (Greenslade) (BMNH, London); 2 ♂, G., 17·6 km SE. Tetere, Tathimani, light-trap, 12.v.1960 (*O'Brien*); 1 ♂, G., Kukum, 10 m, light-trap, 21.vi.1956 (*Gressitt*); 4 ♂, 5 ♀, Kolombangara, Pepele, 30 m, 6, 10, 15.ii.1964 (*Shanahan*); 2 ♂, 3 ♀, NW. Malaita, Dala, light-trap, 5–7.vi.1964 (*Straatman*); 1 ♂, San Cristobal, Wairahu R., 100 m, pressure lamp, 9–15.v.1964 (*Straatman*) (all in BPBM, Honolulu). **Vanuatu**: 1 ♂, Lamen I., 0–10 m, i.1976 (*Krauss*) BPBM, Honolulu); 1 ♂, Tanna I.,

Isokoai (Enpinana), 28.vii.1971 (*Gross*) (SAM, Adelaide). **Fiji**: 2 ♂, 1 ♀, Lau, Group, Ono-i-Lau, Nukuni, 0–50 m, 24.ii.1971 (*Krauss*) (BPBM, Honolulu). **Cook Is.**: 1 ♀, Niue I., nr Lefuka, bush area, m.v. light, 18.vi.1975 (*Maddison*) (BMNH, London); 1 ♂, Niue I., Kavara, at light, 11.vi.1975 (*Dugdale*) (DSIR, Auckland).

Parohinka spinosa sp. n.

(Figs 98–102)

Length: ♂, 5·8 mm.

Pale yellow with vertex and dorsal region of face mottled with brown; other markings as in generic description.

External characters as in *morona* with medial length of vertex 3·0 times length next to eyes and 1·2–1·3 times basal width between eyes.

Male genitalia similar to *lotophagorum* but posterior margin of pygophore extended into a long spine-like process dorsally and apical process of style narrower, without a preapical prominence. Aedeagus with shaft expanded from base to apex in lateral aspect, two lateral and one posterior process arising immediately below apex, directed ventrally, moderately long.

Female genitalia unknown.

REMARKS. In external appearance this species is similar to *morona*, *sinuata*, *trispicata* and *lotophagorum* and sympatric with *morona* in its single known locality in Papua New Guinea. In the male genitalia *spinosa* and *lotophagorum* can be distinguished from other members of the genus by the serrate posterior margin of the pygophore. From *lotophagorum* it differs in the male genitalia in the shape of the pygophore and style, as noted above, and the aedeagus with three processes.

DISTRIBUTION. Known only from the type-locality in New Guinea (Papua New Guinea).

MATERIAL EXAMINED

Holotype ♂, **New Guinea**: Papua New Guinea, Cyclops Mts, Sabron, 279 m, v.1936 (*Cheesman*) (BMNH, London)

Paratypes. **New Guinea**: 1 ♂, same data as holotype except, camp 2, 600 m; 3 ♂, same data as holotype except, vi.1936 (BMNH, London)

Parohinka dulita sp. n.

(Figs 103–110)

Length: ♂, 5·5–5·9 mm, mean 5·7 mm; ♀, 5·8–6·2 mm, mean 6·1 mm.

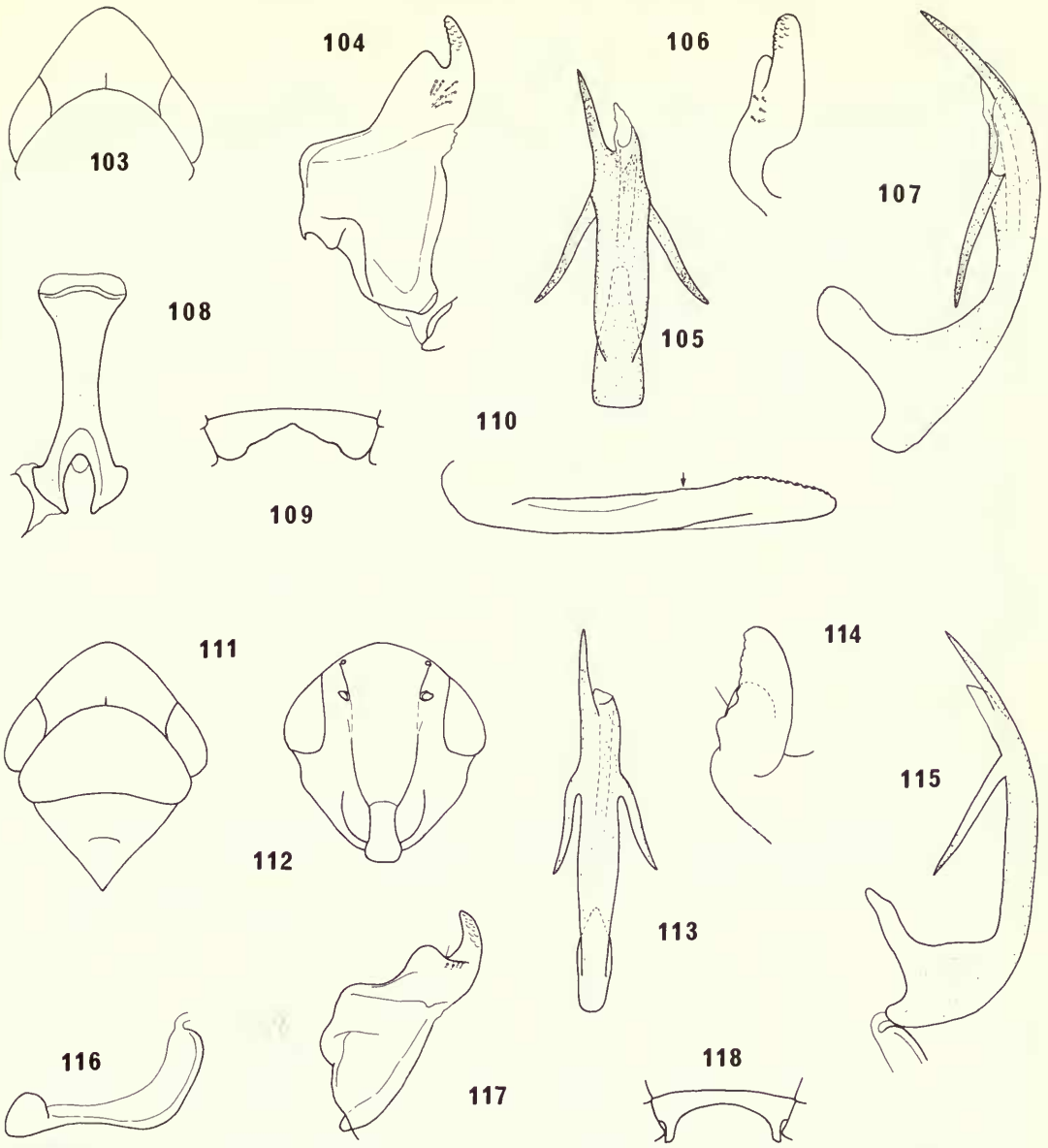
Pale, sordid or greenish yellow. Vertex and dorsal region of face mottled with pale brown; other markings as in generic description.

External characters as in *morona* but vertex moderately long, medial length 2·1 times length next to eyes and 0·8 times basal width between eyes.

Male genitalia as in generic description with pygophore moderately long and Xth segment extending slightly beyond posterior margin of pygophore. Connective moderately long, upturned apically. Style with apical process digitate. Aedeagus with shaft narrowly club-shaped in lateral aspect with a moderately long process at apex on one side, directed dorsally, and a moderately long subapical process on each side, arising against anterior margin, directed ventrally; apical region of shaft adjacent process and surrounding gonopore membranous.

Female genitalia with posterior margin of pregenital sternite broadly V-shaped medially, each posterior corner slightly produced lobe-like; second valvulae united at approximately 0·40 distance from apex to base of valvulae; teeth fine, extending to approximately 0·25 distance from apex to base of valvulae.

REMARKS. The following six species and *dulita* form a distinct group based on distribution (Oriental region from NE. India to Indonesia) and on the shape of the male and female genitalia (see 'Remarks' under generic description, p. 58). In the length of the vertex *dulita* is similar to some specimens of *longiseta* but differs from this and other members of the genus by the lobe-like posterior corners of the pregenital sternite and the valvulae united basad of the teeth. It is very similar to *brevicephala* in the male genitalia but differs in having the apical process of the style narrower in medial aspect and the shaft of the aedeagus narrowly club-shaped. This species is known to be sympatric with *longiseta* and *brevicephala* in Sarawak.



Figs 103–118 *Parohinka* species. 103–110. *P. dulita*. (103) head and thorax, dorsal view; (104) left style, ventral view; (105) aedeagus, posterior view; (106) apex of left style, ventromedial view; (107) aedeagus, lateral view; (108) connective, dorsal view; (109) ♀ pregenital sternite; (110) second valvulae, lateral view. 111–118. *P. brevicephala*. (111) head and thorax, dorsal view; (112) face; (113) aedeagus, posterior view; (114) apex of left style, medial view; (115) aedeagus, lateral view; (116) connective, lateral view; (117) left style, ventral view; (118) ♀ pregenital sternite, ventral view.

DISTRIBUTION. Known only from Borneo (Sarawak, Mt Dulit).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, foot of Mt Dulit, junction of R. Tinjar & Lejok, light-trap, 31.viii.1932 (*Hobby & Moore*) (BMNH, London)

Paratypes. **Borneo**: 2 ♀, same data as holotype, except, old secondary forest, 29.vii.1932; 1 ♀, same data as holotype except, 29.viii.1932; 1 ♂, same data as holotype except, 1.ix.1932; 1 ♀, same data as holotype except, 4.x.1932; 1 ♂, Sarawak, Mt Dulit, Dulit trail, old secondary forest, 3.ix.1932 (*Hobby & Moore*) (BMNH, London)

Parohinka brevicephala sp. n.

(Figs 111–118)

Length: ♂, 6·2 mm; ♀, 6·9–7·1 mm, mean 7·0 mm.

Colour as in *dulita*.

External characters as in generic description with vertex short, medial length 1·5 times length next to eyes and 0.5 times basal width between eyes. Face slightly longer than wide with upper medial keel very slight or absent; clypeus relatively short and broad.

Male genitalia similar to *dulita* but style with apical process slightly expanded in medial aspect and aedeagus with shaft of similar width throughout length in lateral aspect.

Female genitalia with posterior margin of pregenital sternite broadly U-shaped with each posterior corner extended posteriorly process-like; second valvulae as in *morona*.

REMARKS. In external appearance this species can be distinguished by its short head and relatively short and broad clypeus. It is sympatric with *dulita* and *longiseta* over part of its range in Sarawak and with *apicalis* in its single known locality in Sabah.

DISTRIBUTION. Borneo (Sarawak, Sabah).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, Gunong Mulu Nat. Park, Long Pala, base camp, 1978 (*Collins*) (BMNH, London)

Paratypes. **Borneo**: 6 ♂, 3 ♀, same data as holotype; 6 ♀, Sarawak, foot of Mt Dulit, junction of R. Tinjar & Lejok, light-trap/at light in house, 1, 2, 26.ix., 3, 31.x.1932 (*Hobby & Moore*) (BMNH, London); 1 ♂, Sabah, Tawau, Quoin Hill, light-trap, 3–7.vii.1962 (*Holtmann*) (BPBM, Honolulu).

Parohinka philippina sp. n.

(Figs 119–123)

Length: ♂, 6·6–7·3 mm, mean 7·0 mm; ♀, 8·4–8·7 mm, mean 8·6 mm.

Pale to greenish yellow. Vertex and dorsal region of face faintly mottled with brown, or markings absent. Fore wings with or without a brown spot at apex of both clavus and claval veins.

External characters as in *morona* but vertex longer, medial length 2·7–3·5 times length next to eyes and 1·0–1·1 times basal width between eyes.

Male genitalia as in *dulita* but aedeagus with shaft of similar width throughout length in lateral aspect, processes short with lateral pair directed more anteriorly.

Female genitalia similar to *brevicephala* but second valvulae broader with distance from apex of first dorsal tooth to dorsal hyaline region relatively long.

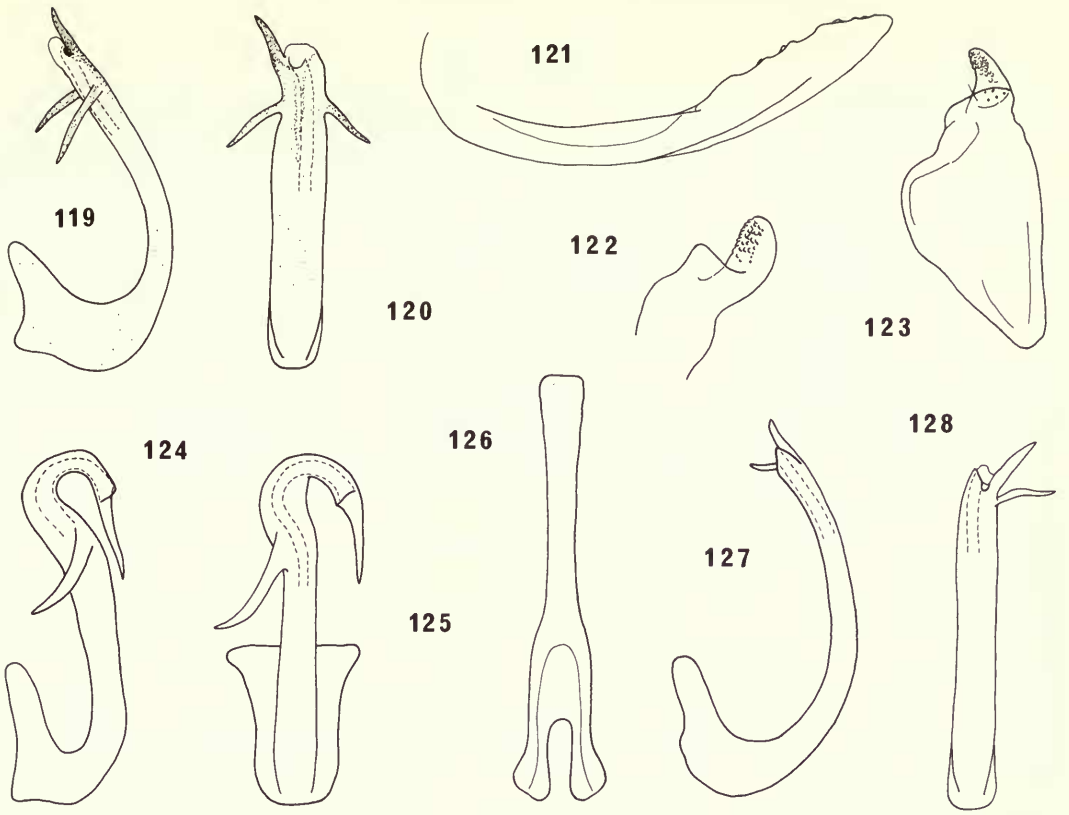
REMARKS. The elongate head of this species is similar to that found in *apicalis* and *malayensis* and slightly longer than in specimens of *longiseta* seen from the same localities in the Philippines. The male genitalia are similar to those of *dulita* and *brevicephala* but differ in the shape of the aedeagus as noted above and from *dulita* by the shorter and broader apical process of the style in medial aspect. In the female genitalia *philippina* can be distinguished by the relatively long distance from the apex of the first dorsal tooth to the dorsal hyaline region of the second valvulae.

DISTRIBUTION. Philippines (Luzon)

MATERIAL EXAMINED

Holotype ♂, **Philippines**: Luzon, Ifugao Prov., Liwo, 8 km E. of Mayoyao, 1000–1300 m, light-trap, 1–3.vi.1967 (*Torrevillas*) (BPBM, Honolulu)

Paratypes. **Philippines**: 9 ♂, 8 ♀, same data as holotype except, 29.v.–1.vi.1967, 7,8,11,12.vi.1967; 2 ♂, Luzon, Ifugao Prov., Jacmal Bunhian, 24 km E. of Mayoyao, 800–1000 m, light-trap, 30.iv., 9–10.v.1967 (Torrevillas) (BPBM, Honolulu; BMNH, London).



Figs 119–128 *Parohinka* species. 119–125. *P. philippina.* (119, 120) aedeagus, lateral and posterior views; (121) second valvulae, lateral view; (122) apex of left style, ventromedial view; (123) left style, ventral view. 124, 125. *P. recurva*, aedeagus, lateral and posterior views. 126–128. *P. apicalis.* (126) connective, dorsal view; (127, 128) aedeagus, lateral and posterior views.

Parohinka recurva sp. n.

(Figs 124, 125)

Length: ♂, 6·6 mm.

Pale yellow. Vertex, dorsal region of face and pronotum mottled with brown; other markings as in generic description.

External characters as in *morona* but vertex longer, medial length 4·0 times length next to eyes and 1·4 times basal width between eyes.

Male genitalia similar to *dulita* with aedeagal shaft of similar width from base to near apex in lateral aspect, apical region narrower, curved laterally and ventrally and terminating in a moderately long ventrally directed process on one side; a slightly curved, anteroventrally directed process arising laterally against posterior margin slightly basad of narrow apical region of shaft; gonopore apical, adjacent to apical process.

Female genitalia unknown.

REMARKS. This species can be distinguished by its elongate head and ventrally curved apex of the aedeagus with one apical and one lateral process. It is sympatric with *apicalis* and *longiseta* (both with shorter heads) in its single known locality in Sarawak.

DISTRIBUTION. Known only from a single specimen from Borneo (Sarawak).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, Kuching, Matang, 450–894 m, m.v. light-trap, 15.ix.1958 (*Gressitt & Maa*) (BPBM, Honolulu).

Parohinka apicalis sp. n.

(Figs 126–128)

Length: ♂, 5·6–7·1 mm, mean 6·6 mm; ♀, 8·0 mm.

Colour and external characters as in *philippina* with medial length of vertex 2·7–3·7 times length next to eyes and 1·2 times basal width between eyes.

Male genitalia with pygophore elongate, as in *longiseta* (Fig. 131). Xth segment extending to approximately level with posterior margin of pygophore. Connective very long, slightly upturned apically. Style with apical process slightly expanded. Aedeagus with shaft evenly tapered from base to apex in lateral aspect, compressed slightly anteroposteriorly with two short apical processes on one side, directed dorsally; gonopore apical, on one side, adjacent to processes.

Female genitalia unknown.

REMARKS. The elongate head of this species is similar to that of *philippina* and *malayensis* and slightly shorter than in *recurva*. In the male genitalia *apicalis* differs from *philippina* and *malayensis* in having two aedeagal processes and from *recurva* by having the apex of the aedeagus directed dorsally. Two female specimens, one from Sabah, Quoin Hill (BPBM, Honolulu) and one from Sarawak, Gunong Matang (BMNH, London) may be this species but differ slightly from one another in the shape of the genitalia.

This species is sympatric with *brevicephala* and *longiseta* (both with shorter heads) in Sabah and with *longiseta* and *recurva* in Sarawak.

DISTRIBUTION. Borneo (Sarawak, Sabah).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, Kuching, Matang, 450–894 m, m.v. light-trap, 15.ix.1958 (*Gressitt & Maa*) (BPBM, Honolulu).

Paratypes. **Borneo**: 1 ♂, Sarawak, Gunong Matang, 120 m, m.v. light-trap, 16.ix.1958 (*Gressitt & Maa*) (BMNH, London); 1 ♂, Sabah, Tawau, Quoin Hill, 15–20.vii.1962 (*Hirashima*) (BPBM, Honolulu).

Parohinka longiseta (Melichar) comb. n.

(Figs 129–143)

Muirella longiseta Melichar, 1914: 135. LECTOTYPE ♂, JAVA (RNH, Leiden), here designated [examined].

Length: ♂, 5·1–6·3 mm, mean 5·7 mm; ♀, 5·7–6·3 mm, mean 6·0 mm.

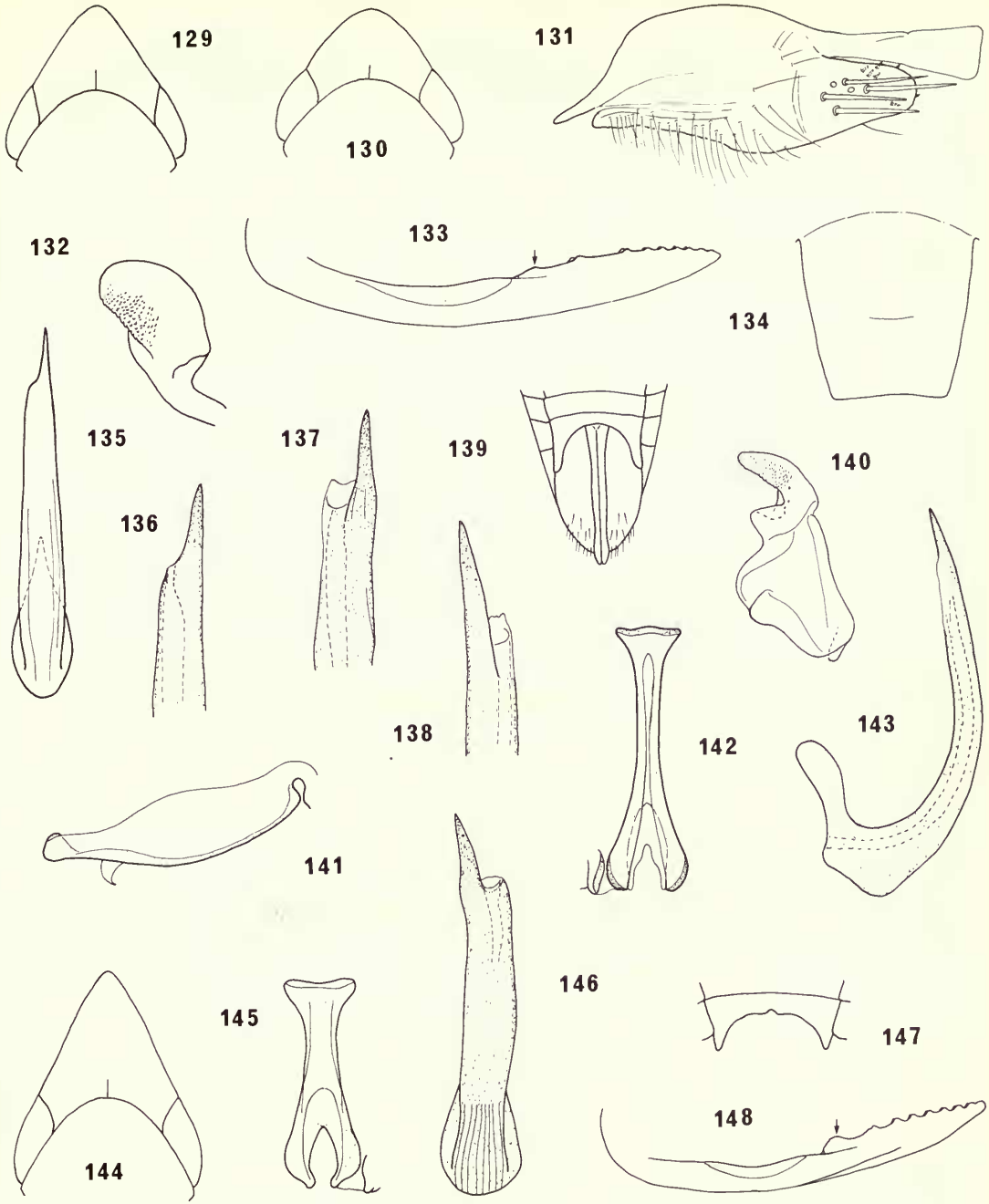
Pale yellow to stramineous, sometimes tinged with green. Head mottled with brown, stramineous or green, or markings absent; clypeus often patched with stramineous to reddish brown laterally. Forewings sometimes with apex and a transverse band at mid length, brown (see 'Remarks' below); other markings as in generic description.

External characters as in *morona* but vertex shorter, medial length 1·5–2·6 times length next to eyes and 0·5–0·9 times basal width between eyes. Face with upper medial keel faint in shorter-headed forms; clypeus elongate. Male genitalia as in generic description with pygophore and Xth segment elongate, the latter extending considerably beyond posterior margin of pygophore. Connective with stem elongate, slightly upturned apically. Style with apical process expanded. Aedeagus with shaft evenly curved and tapered from base to apex in lateral aspect with a single apical process directed dorsally; often apex of shaft surrounding gonoduct membranous; few faint longitudinal ridges on posterior surface of shaft and variably on apical process; gonopore apical, adjacent to apical process.

Female genitalia as in *brevipennis*, with extended posterior corners of pregenital sternite short to long.

REMARKS. This is the most widespread species of the genus and sympatric with all six other species in the *dulita*-group over parts of its range from the Philippines to Sarawak. Specimens with shorter heads are similar to *brevicephala* but have the clypeus and extended posterior corners of the pregenital sternite longer. The male genitalia are similar to *malayensis* but differing in the longer pygophore, Xth segment and connective.

In the male genitalia the apical process of the aedeagus shows some variation in shape (see Figs 136–138) and a few specimens from Malaya have the fore wings conspicuously marked with brown, as noted above; these specimens also have the markings on the head darker brown and the vertex shorter than in other specimens.



Figs 129–148 *Parohinka* species. 129–143. *P. longiseta.* (129, 130) head and pronotum, dorsal view; (131) ♂ pygophore and Xth segment, lateral view; (132) apex of left style, medial view; (133) second valvulae, lateral view; (134) ♂ Xth segment, dorsal view; (135) aedeagus, posterior view; (136) apex of aedeagus, posterior view, Java; (137) same, Sarawak, Paya Paloh; (138) same, Malaya, Selangor; (139) apex of ♀ abdomen, ventral view; (140) left style, ventral view; (141, 142) connective, lateral and dorsal views; (143) aedeagus, lateral view. 144–148. *P. malayensis.* (144) head and pronotum, dorsal view; (145) connective, dorsal view; (146) aedeagus, posterior view; (147) ♀ pregenital sternite, ventral view; (148) second valvulae, lateral view.

DISTRIBUTION. Nepal, extreme north-east of India eastwards to the Philippines and south to Java (excluding Borneo).

MATERIAL EXAMINED

Muirella longiseta Melichar, lectotype ♂, **Java**: Wonosobo, v.1909 (*Jacobson*) (RNH, Leiden).

Nepal: 1 ♂, Adhabbar, Godavari, 1500 m, 5.viii.1967 (CNC, Ontario); 1 ♀, Kathmandu, 1300–1400 m, 7–12.v.1966 (Sedlacek) (BPBM, Honolulu). **India**: 1 ♂, W. Bengal, Darjeeling, 9.xi.1969 (*Das*) (BMNH, London). **Thailand**: 1 ♂, Chieng Mai Prov., Doisuthep, 100 m, at light, 18.vi.1965 (*Miyatake*) (ELKU, Fukuoka). **Philippines:** 17 ♂, 4 ♀, Luzon, Ifugao Prov., Liwo, 8 km E. of Mayoyao, 1000–1300 m, light-trap, 30.v–12.vi.1979 (*Torrevillas*); 1 ♂, Ifugao Prov., Jacmal Bunhian, 24 km E. of Mayoyao, 800–1000 m, light-trap, 27–29.iv.1967 (*Torrevillas*); 1 ♂, Mindanao, Mt Balatukan, 15 km SW. of Gingoog, 1000–2000 m, at light, 27–30.iv.1960 (*Torrevillas*); 1 ♀, M., Del Sur, 32 km NW. of Milbuk, 900 m, rain forest, light-trap, 6.viii.1958 (*Milliron*) (all in BPBM, Honolulu). **Malaya**: 2 ♂, 1 ♀, Gomak For. Res. near Kuala Lumpur, 28.xii.1958 (*Quate*); 1 ♂, 2 ♀, Pahang, Kuala Tahan, 15–16.xii.1958 (*Quate*); 3 ♂, 2 ♀, Kuala Lumpur, Klang gates, 31.xii.1958 (*Quate*) (all in BPBM, Honolulu); 1 specimen (abdomen missing), Kuala Lumpur, at light, 6.ii.1931 (*Pendlebury*); 3 ♀, West Coast, P. Angsa, Lt. Ho., at light, 26–27.x.1926 (*Seimund*); 1 ♂, Kedah, near Jitra, catchment area, 8.iv.1928 (*Pendlebury*); 1 ♂, Selangor, Kepong, 7.ii.1958, at light; 2 specimens (abdomens missing), Perak, G. Kledang, 795 m, 15.xi.1927 (*Seimund*) (all in BMNH, London). **Singapore**: 14 ♂, 5 ♀, Mandaj, mangrove, 7.ix.1977 (*Murphy*) (BMNH, London). **Borneo**: 1 ♂, Sarawak, Paya Paloh, at light, 4.xi.1964 (*Rothschild*); 2 ♀, Sarawak, Mt Dulit, 22 m, moss forest, light-trap, 28.x.1932 (*Hobby & Moore*); 1 ♂, Sarawak, Gunong Mulu Nat. Park (*Collins*); 1 ♂, Sarawak, Gunong Mulu Nat. Park, base camp, at light, v.1978; 1 ♀, Sarawak, Kalabit End (Mjorberg) (all in BMNH, London); 1 ♂, Sarawak, Sarikei Dist., Rejang delta, 15–25.vii.1958 (*Maa*); 1 ♂, Sarawak, Matang, m.v. light-trap, 13.ix.1958 (*Gressitt*) (both in BPBM, Honolulu); 1 ♂, Sabah, Kalabakan, light-trap, 10–19.xi.1958 (*Quate*); 1 ♂, Sabah, Kalabakan, primary forest, 11.xi.1958 (*Maa*); 1 ♀, Sabah, Tawau, Quoin Hill Cocoa Res. Sta., 20.viii.1962 (*Hirashima*); 1 ♀, Sabah, Tawau, Quoin Hill, light-trap, 15–20.vii.1962 (Holtman) (all in BPBM, Honolulu); 1 ♀, Sabah, R. Karamuak, 7 m SSE. Telupid, 60 m, 1–7.ix.1977 (*Bacchus*) (BMNH, London). **Java**: 1 ♂, Batavia, xi.1908 (*Jacobson*) (RNH, Leiden) (paralectotype of *Muirella longiseta* Melichar).

Parohinka malayensis sp. n.

(Figs 144–148)

Length: ♂, 6·2 mm; ♀, 6·9 mm.

Sordid to brownish yellow; vertex and dorsal region of face mottled with brown; other markings as in generic description.

External characters as in *morona* but vertex longer, medial length 3·2 times length next to eyes and 1·2 times basal width between eyes.

Male genitalia similar to *longiseta* but pygophore and Xth segment shorter, the latter extending only slightly beyond posterior margin of pygophore, connective with stem short rather than long and aedeagus with shaft more robust.

Female genitalia similar to *longiseta* with extended posterior corners of pregenital sternite short; second valvulae relatively narrow with first dorsal tooth large.

REMARKS. This species is closely related to *longiseta* but differs in its longer head and in the shape of the male genitalia, as noted above.

DISTRIBUTION. Known only from the type-locality in Malaya.

MATERIAL EXAMINED

Holotype ♂, **Malaya**: West Coast, P. Angsa, Lt. Ho., at light, 11.x.1926 (*Seimund*) (BMNH, London).

Paratypes. **Malaya**: 1 ♂, 1 ♀, same data as holotype except, 12/16.x. 1926 (BMNH, London).

KAROSEEFA gen. n.

Type-species: *Karoseefa brevipenis* sp. n.

Yellow tinged with green.

Head wider than pronotum; anterior margin rounded in profile, transversely striate; ocelli on margin distant from eyes, not or slightly visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length slightly less than twice length next to eyes; sides

slightly convex; apex moderately angularly rounded; finely longitudinally striate, transversely striate anteriorly. Face slightly wider than long, convex in profile, shagreen; clypeus relatively short and broad, lateral margins slightly constricted near antennae; clypellus moderately long, of similar width throughout length; lora large; antennal pit deep with inner margin evenly rounded to clypeus; antennal ledge slight; antennae very long, extending to near apex of clavus. Pronotum approximately twice as wide as long, sides very short, without a carina; transversely striate, obscurely rugose anteriorly. Scutellum approximately equal in length to pronotum, shagreen, obscurely rugose posteriorly. Fore wings with three subapical cells, first subapical cell open, second and third subapical cells closed; with a few additional veinlets in subcostal region near to fifth apical cell. Fore tibia with dorsal setal arrangement 1 : 4; fore femur with a series of 10 fine setae distally on anterior surface; hind femur with apical setal formula 2 + 1 + 1 with first proximal seta slender.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore strongly incurved dorsally with a short apodeme on each side; pygophore lobes with an oblique internal ledge extending to posterior margin; lobes with several macrosetae and short fine setae. Xth segment fairly short, compressed dorsoventrally. Valve triangular. Subgenital plate elongate, triangular, evenly tapered to apex or with distal region digitate and lightly sclerotized; apex of basal lobe with a short acute prominence; outer margin of dorsal surface with several moderate to long fine setae; ventral surface with few short fine setae with or without numerous long fine setae along outer margin; apical region of dorsal and ventral surfaces with several short stout setae. Style moderately long with basal apophyses and lateral lobe prominent; apical process moderately long, curved ventrally and tapered to apex, crenulate dorsally or dentate ventrally; few sensory papilla dorsally, adjacent to lateral lobe. Connective Y-shaped, stem moderately long and narrow, lateral margins keel-like dorsally; arms short. Aedeagus with shaft short or long, narrow, tapered from base to apex and terminating in a pair of dorsally directed processes, gonopore small, situated apically; basal apodeme moderately long and narrow.

Female genitalia with posterior margin of pregenital sternite with one or two lobes each side of mid line; second valvulae united at first dorsal tooth (arrowed in Fig. 160), elongate, of similar width throughout length, without a basal prominence; dorsal teeth robust, unaligned, extending approximately one-quarter distance from apex to base of valvulae; dorsal sclerotized region elongate.

REMARKS. This genus can be distinguished from others of the subfamily by the broad clypeus and clypellus with sides parallel rather than concave. In the male genitalia it is similar to *Dryadomorpha* but the anterior margin of the pygophore is strongly incurved dorsally with a short apodeme on each side. The female genitalia have the second valvulae similar to those of *Parohinka* and *Rhutelorbus*.

DISTRIBUTION. Borneo (Sarawak, Sabah).

Key to species of *Karoseefa*

1 Aedeagus short with apical processes more or less parallel; posterior margin of female genital sternite with two lobes each side of mid line (Fig. 161) . . . . . ***brevipenis*** sp. n. (p. 70)

– Aedeagus long with apical processes divergent; posterior margin of female pregenital sternite with a single lobe each side of mid line (Fig. 163) . . . . . ***divergens*** sp. n. (p. 73)

Karoseefa brevipenis sp. n.

(Figs 149–161)

Length: ♂, 5·2–5·6 mm, mean 5·4 mm; ♀, 5·5–5·8 mm, mean 5·6 mm.

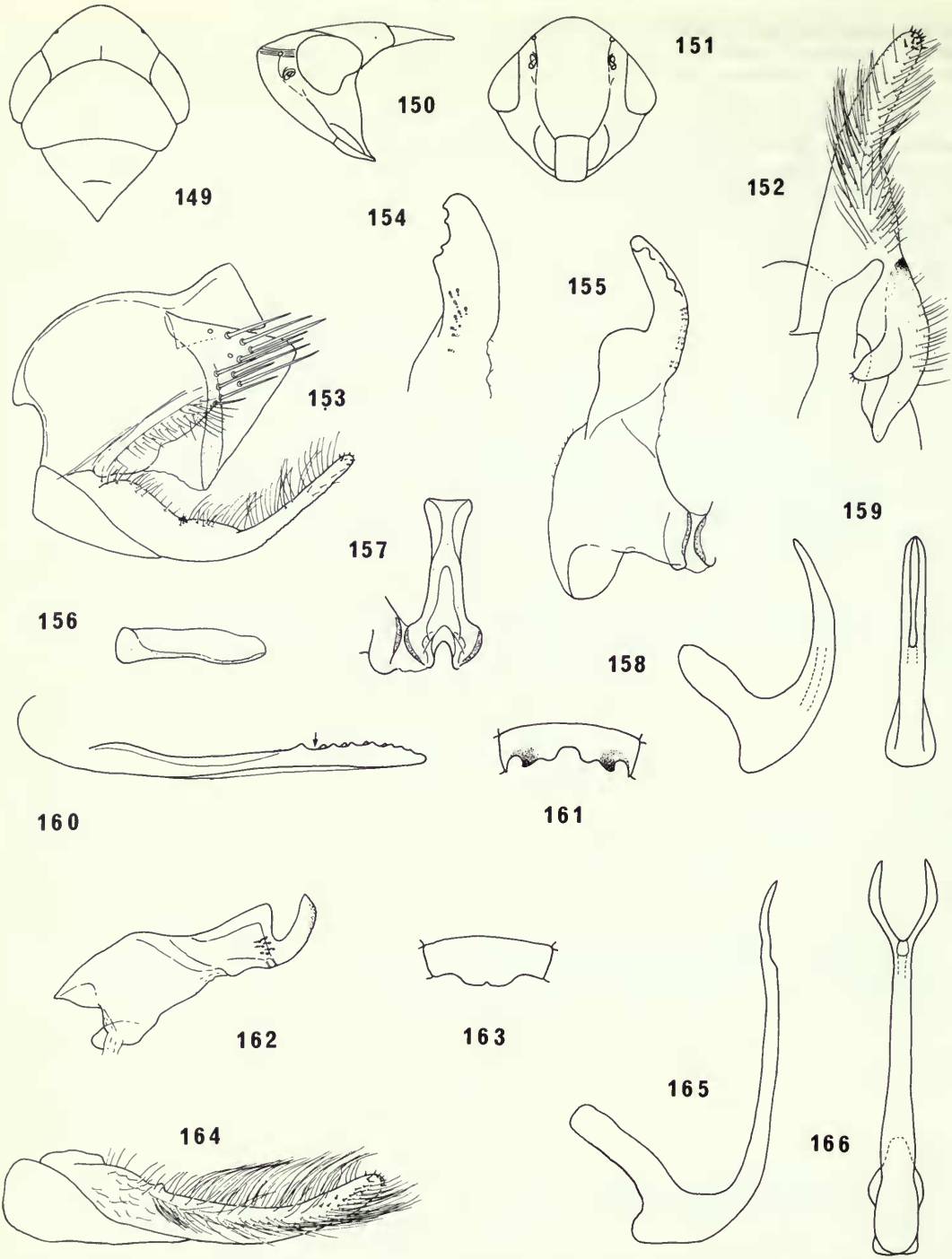
Colour and external characters as in generic description.

Male genitalia as in generic description with apex of subgenital plate digitate and lightly sclerotized, apical process of style dentate dorsally and aedeagus relatively short with processes more or less parallel.

Female genitalia with posterior margin of pregenital sternite with two lobes each side of mid line, the more lateral lobe acute.

REMARKS. I have identified only specimens of uniform colour as this species, a female specimen from Sabah: N. of Kalabakan (BPBM, Honolulu) may also be this species but has the fore wings banded with brown.

In external appearance this species is almost identical to *divergens* and is sympatric with this species over its known range in Sabah. From *divergens* it can be distinguished by its slightly



Figs 149–166 *Karoseefa* species. 149–161. *K. brevipenis.* (149) head and thorax, dorsal view; (150) same, lateral view; (151) face; (152) left subgenital plate and apex of left style, dorsal view; (153) ♂ genitalia capsule; (154) apex of left style, medial view; (155) left style, ventral view; (156) connective, lateral view; (157) same, dorsal view. (158, 159) aedeagus, lateral and posterior views; (160) second valvulae, lateral view; (161) ♀ pregenital sternite, ventral view. 162-166. *K. divergens.* (162) left style, ventral view; (163) ♀ pregenital sternite, ventral view; (164) valve and left subgenital plate, lateral view; (165, 166) aedeagus, lateral and posterior views.

smaller size and female pregenital sternite with two lobes each side of the mid line. In the male genitalia *brevipenis* differs from *divergens* in having the apical region of the subgenital plate narrower, the ventral surface of the subgenital plate without long fine setae, the apical process of the style dentate and the aedeagus shorter with the apical processes parallel.

DISTRIBUTION. Borneo (Sarawak, Sabah).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, foot of Mount Dulit, junction of R. Tinjar and Lejok, old secondary forest, at light, 29.viii.1932 (*Hobby & Moore*) (BMNH, London).

Paratypes. **Borneo**: 7 ♂, 10 ♀, same data as holotype, except 28.viii–4.x.1932; 1 ♀, Sarawak, Mount Dulit, moss forest, 1200 m, 21.x.1932 (*Hobby & Moore*) (BMNH, London); 1 ♂, Sabah, Bettotan, near Sandakan, 31.vii.1927 (BMNH, London); 1 ♀, Sabah, Tawau, Quoin Hill, at light, 26–29.vii.1962 (*Holtmann*) (BPBM, Honolulu).

Karoseefa divergens sp. n.

(Figs 162–166)

Length: ♀, 6·0 mm; ♀, 6·5–6·7 mm, mean 6·6 mm.

Colour and external characters as in generic description.

Male genitalia as in *brevipenis* but subgenital plate evenly tapered to apex and ventral surface of subgenital plate with numerous long fine setae laterally. Style with apical process less robust and crenulate dorsally and aedeagus with processes divergent.

Female genitalia with posterior margin of pregenital sternite with a single lobe each side of mid line.

REMARKS. This species is almost identical to *brevipenis* externally and is sympatric with this species over its known range in Sabah. For differences between the two species see 'Remarks' under *brevipenis* (p. 71).

DISTRIBUTION. Borneo (Sarawak, Sabah).

MATERIAL EXAMINED

Holotype ♂, **Borneo**: Sarawak, Gunong Mulu Nat. Park, Long Pala, 70 m, alluvial secondary forest, on batu canopy, at light, iii.1978 (*Holloway*) (BMNH, London).

Paratypes. **Borneo**: 1 ♀, Sarawak, Gunong Mulu Nat. Park, near Long Pala, 50 m, alluvial forest, understorey, at light, v.1978 (*Holloway*) (BMNH, London); 1 ♀, Sabah, Tawau, Quoin Hill, at light, 3–7.vii.1962 (*Holtmann*) (BPBM, Honolulu).

OCEANOPONA Linnavuori

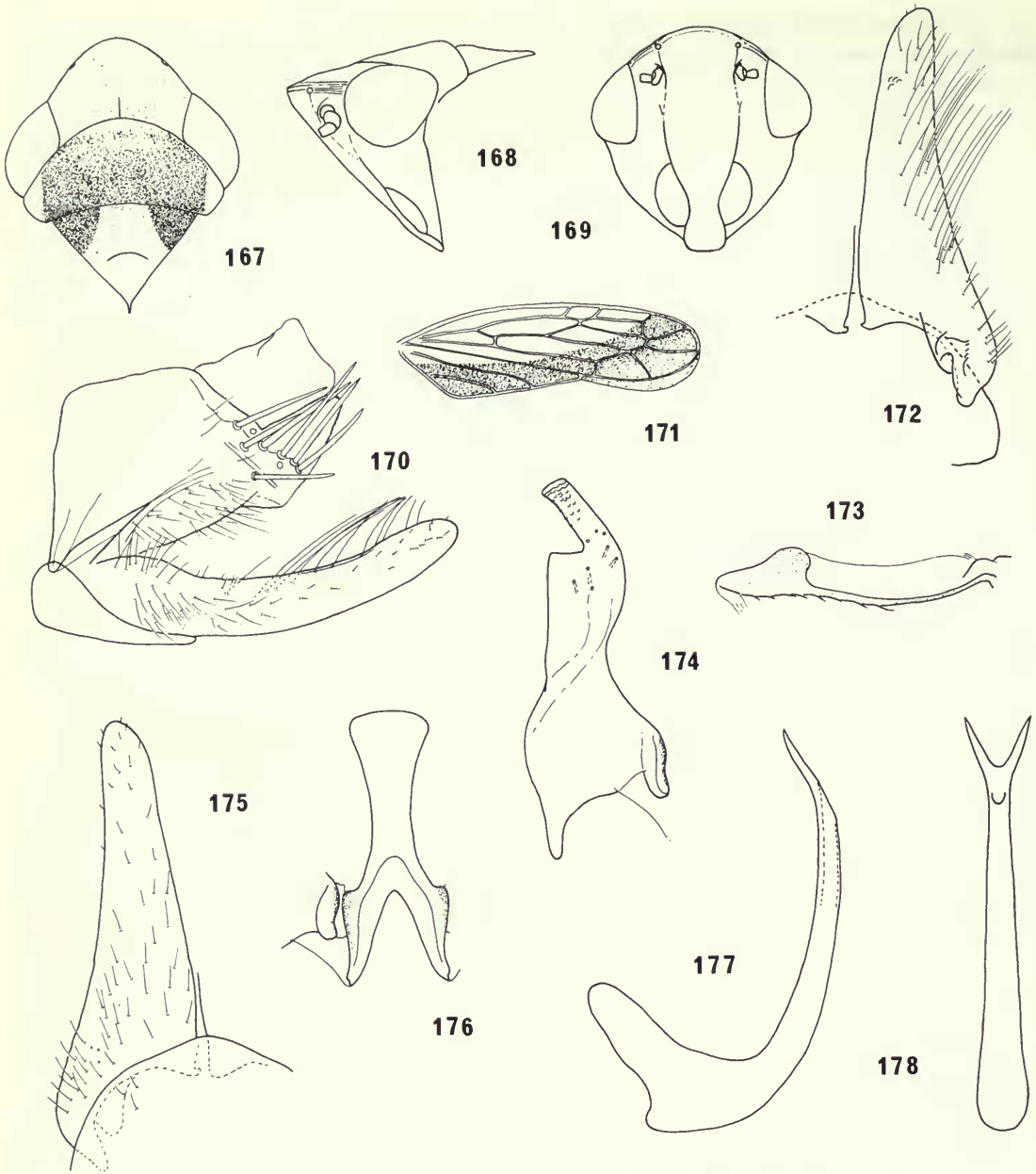
Oceanopona Linnavuori, 1960: 300. Type-species: *Oceanopona croceipennis* Linnavuori, by original designation.

Yellow to stramineous; male with thorax and fore wing marked with brown.

Head wider than pronotum; anterior margin narrowly rounded in profile, transversely striate; ocelli on margin distant from eyes, visible from above; anterior tentorial branches curved anteriorly, not bifurcate. Vertex triangularly produced, medial length approximately 1·7 times length next to eyes, sides slightly convex, apex narrowly angularly rounded; shagreen and obscurely rugose, transversely striate anteriorly. Face approximately as long as wide, shagreen; more or less straight in profile; clypeus elongate, lateral margins constricted near antennae; clypellus elongate, expanded apically; transclypeal suture indistinct; lora large; antennal pit deep with inner margin angularly rounded to clypeus, rim-like; antennal ledge slight; antennae very long, extending to near apex of clavus. Pronotum approximately twice as wide as long, sides very short, without a carina; finely transversely striate, obscurely rugose anteriorly. Scutellum approximately equal in length to pronotum, shagreen. Fore wings with three subapical cells, first subapical cell open, second and third subapical cells closed. Fore tibia with dorsal setal arrangement 1 : 4; fore femur with a series of six fine setae distally on anterior surface; hind femur with apical setal formula 2 + 1 + 0.

Apodemes of male third abdominal segment ventral, reduced.

Male genitalia with anterior margin of pygophore slightly incurved dorsally, without apodemes; pygophore lobes with a slight oblique internal ledge, not attaining posterior margin, lobes with several macrosetae and short to moderately long fine setae. Xth segment moderately long, compressed dorsoventrally.



Figs 167–178 *Oceanopona croseipennis*. 167, head and thorax, dorsal view; 168, same, lateral view; 169, face; 170, ♂ genital capsule, lateral view; 171, fore wing; 172, valve and left subgenital plate, dorsal view; 173, connective, lateral view; 174, left style, ventral view; 175, valve and left subgenital plate, ventral view; 176, connective, dorsal view; 177, 178, aedeagus, lateral and posterior views.

Valve triangular. Subgenital plate elongate, triangular, outer margin of dorsal surface with several short fine setae and a group of long fine setae from mid length to near apex; ventral surface with several short fine setae. Style moderately long with lateral lobe and basal apophyses prominent; apical process moderately long, turned ventrally with sides parallel, crenulate distally; few sensory papilla ventrally adjacent to lateral lobe. Connective Y-shaped, stem moderately long, narrow with lateral margins keel-like dorsally; arms with apophyses relatively long. Aedeagus with shaft elongate, curved dorsally, evenly tapered to apex and terminating in a pair of dorsally directed processes; gonopore apical on posterior surface, small; basal apodeme moderately long, narrow.

Female genitalia with second valvulae united at first dorsal tooth, fairly robust, slightly expanded distally, dorsoanterior prominence present; teeth fine, extending along approximately distal third of valvulae; dorsal sclerotized region moderately long.

REMARKS. This genus is similar externally to *Dryadomorpha* and *Parohinka* but with the vertex shagreen and obscurely rugose and the setal formula of the hind femur 2 + 1 + 0. The male genitalia are similar to those of *Dryadomorpha* and *Karoseefa* but with the internal ledge of the pygophore lobes not extending to the posterior margin and the connective with the apophyses of the basal arms relatively long. In the female genitalia the second valvulae are similar to those of *Dryadomorpha* but with the teeth extending along approximately the distal third of valvulae.

The specimen of *Oceanopona* recorded by Evans (1966: 247) from Australia is identified as *Dryadomorpha metrosideri* (Osborn).

DISTRIBUTION. Eastern Caroline Is.

Oceanopona croceipennis Linnavuori

(Figs 167–178)

Oceanopona croceipennis Linnavuori, 1960: 301. Holotype ♂, CAROLINE Is. (BPBM, Honolulu) [examined].

Length: ♂, 4·4–4·7 mm, mean 4·6 mm; ♀, 5·9 mm.

Yellow or stramineous. Male with pronotum brown posteriorly; scutellum turning to brown anteriorly with basal triangles darker brown; legs heavily marked with brown; fore wings golden to yellow, sometimes tinged with green, with a broad dark brown band along clavus, on apical region of subapical cells and becoming slightly paler on apical cells and appendix. Female variably tinged with green, without brown markings.

External characters as in generic description.

Male genitalia as in generic description with lateral lobe of style short and angularly rounded in ventral aspect. Aedeagus with apical processes divergent, short.

Female genitalia with posterior margin of pregenital sternite shallowly concave.

DISTRIBUTION. Eastern Caroline Is.

MATERIAL EXAMINED

Oceanopona croceipennis Linnavuori, holotype ♂, **Caroline Is.**: Ponape, Mt Tamatamansakir, 180 m, 17.i.1953 (*Gressitt*) (BPBM, Honolulu).

Caroline Is.: 4 ♂, 1 ♀, Ponape, Mt Tamatamansakir, 180 m, 15–19.i.1953 (*Gressitt*) (BPBM, Honolulu) (paratypes of *Oceanopona croceipennis* Linnavuori); 1 ♂, Kusaie I., Matanluk, Yepan, 23.i.1953 (*Gressitt*) (BPBM, Honolulu) (paratype of *Oceanopona croceipennis* Linnavuori).

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Invalid names are in *italics*; references to descriptions are in **bold**.